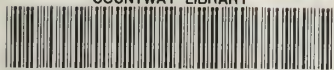
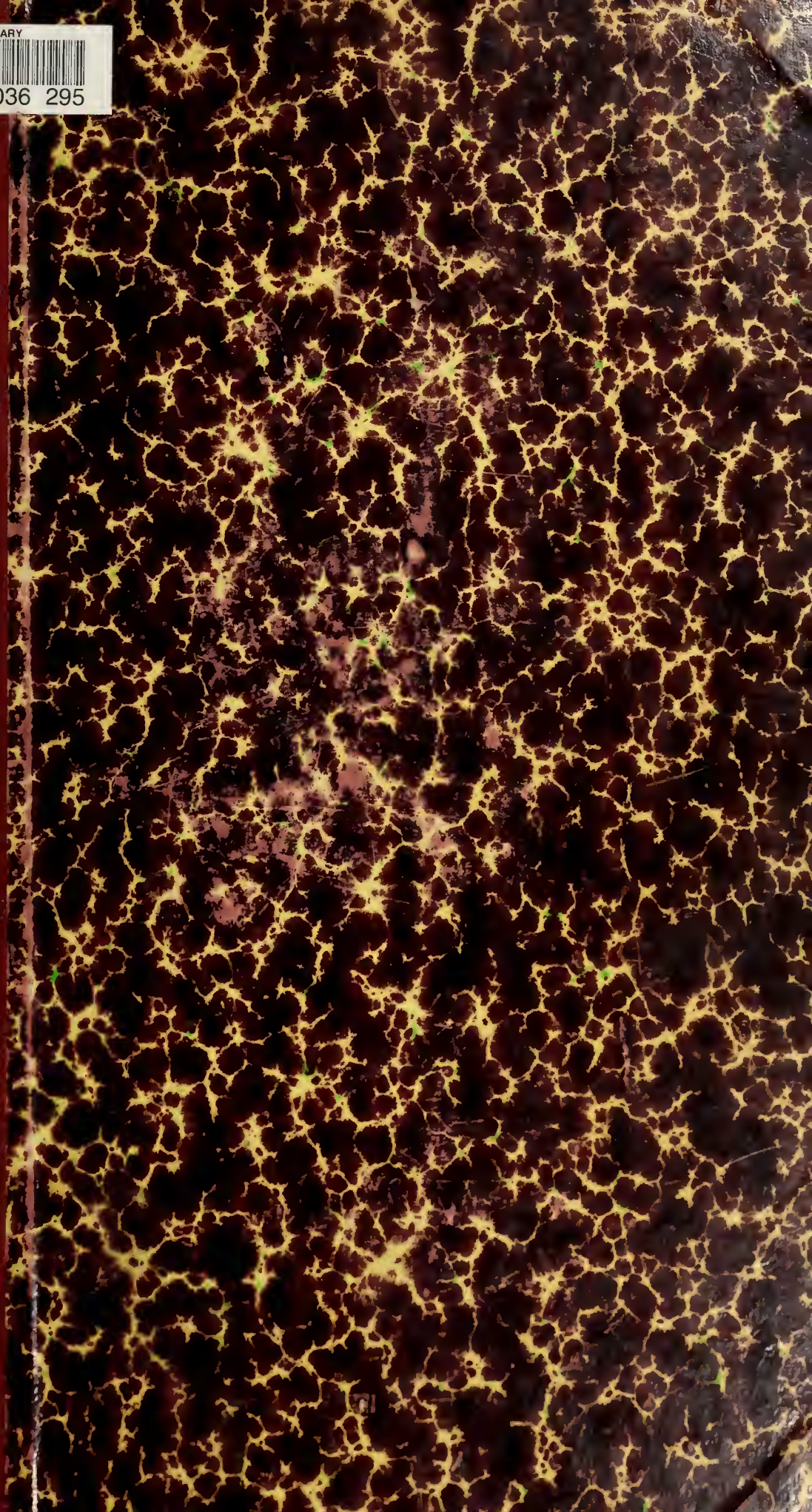


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### COMMON DUCT INJURIES AND RECONSTRUCTION\*

JOHN F. ERDMANN, M.D., New York City

Since the publication of an article by Sullivan† of Wisconsin, in 1909, on the method of the repair of traumatized bile ducts, numerous contributions to the literature have been made, the greater proportion, however, being devoted to the early literature and few to the patient and his repair.

To grasp properly the cause of accidental trauma, outside of sheer recklessness or stupidity, one must consider the anatomy of the structures directly concerned in both accidental and unavoidable trauma. In the latter, the unavoidable causes, one must consider inflammatory conditions and new growth. In the anatomy we must bear in mind the course which is pursued by the cystic duct. There are three major courses by which the cystic duct may approach its union with the hepatic duct; the spiral, the parallel and that of the acute angle usually described in the works on anatomy. It requires no great imagination to see how the spirally implanted cystic duct may be grasped with the common or hepatic duct, especially if the spirally curved cystic duct unites on the opposite side or under the main duct. The parallel duct, lying upon or to the side of the main duct is or may be so closely adherent, due to adhesions or cellular tissues which bind it to the common or hepatic duct, that the operator is deceived, and unless great care is taken in its release the common duct will be lifted from its bed and clamped off. While the acute angle type is present in the majority of instances, yet the angle may vary so as to be a distinct source of error.

The various lengths of the cystic duct must also be thoroughly understood. A short cystic duct may lead to a lateral grasp, either by clamp or ligation, of the common duct, thereby producing a compression slough of the walls of the

common duct sufficient to prevent spontaneous repair. To obviate the danger of injury to the duct the cystic duct must be thoroughly demonstrated in its continuity from the gallbladder down. This is easily done in the majority of instances by splitting the peritoneum on the right side over the gallbladder about one-half to one inch from its hepatic bed. The gallbladder can then be elevated and rotated on its long axis so that the underlying structures can readily be demonstrated. The cellular tissue can then be pushed aside, and the terminal Krause pouch and the beginning cystic duct demonstrated. With the fibroid changes seen in some of the long standing and recurring infectious varieties, great care must be exercised as this type of newly formed tissue may be found to extend into the common duct. The slightest mishap in dissection in such will produce all the damage imaginable.

The arterial supply is sufficiently presented in its vagaries both by our anatomic textbooks and by the more recent articles of Eisendrath and others. Too great care cannot be exercised in approaching the cystic artery, and in the event of hemorrhage by tear, slipping of the clamp and the like, the most thorough care must be sustained in finding the bleeding point. I am convinced that in an attempt to stem a sudden hemorrhage, either real or imagined, mass grasping by means of an artery clamp has included the duct. One should never allow the assistant to attend to deep hemorrhage. In a medico-legal case the question of destruction of the blood vessel supply arose as follows: "May not the clamping or tying of the vessel produce a thrombosis extending into the minute vessels or the main vessels of supply of the duct, thereby producing a true surgical slough?"

Among the pathologic causes, non-neoplastic, the atrophied or contracted gallbladder has its share in producing trauma, as well as has the thickened and fibroid infiltrated type. Gangrenous extension obtains by the same routes as does gangrenous extension seen occasionally into the cecum from a gangrenous appendix. Ulceration

\* Presented before the Des Moines Academy of Medicine and Polk County Medical Society, Des Moines, September 13, 1935.

† Sullivan, Arthur: Reconstruction of the bile ducts. Jour Am. Med. Assn., 1909.

from biliary calculi may be productive of stricture formation or destruction of the duct wall sufficient to produce obliteration of a part of the continuity of the duct. In addition to the trauma caused by anatomic abnormalities, there are those induced by the operator. For instance, the placing of ligatures too close to the common duct or the infolding by the ligatures of a part of it, larger than will normally repair, or that may repair leaving a distinct stricture or producing a definite contracture, each of which may be followed by occlusion in a short time.

The incision of choledochostomy should be in the long axis of the duct and not transverse. Great care should be exercised in the use of forceps or the finger when entering the common duct for stones not to tear the duct transversely. This applies also to the use of the stitch in securing a drainage tube in the duct when necessary. Such an accident in a large obese woman occurred in my service some years ago. While I was placing the needle in the wall of the duct the patient attempted to vomit. This resulted in a tear of the common duct fully one-half of its circumference in addition to my longitudinal cut. Several stitches were required. After six or seven weeks of great anxiety on my part the fistula closed. Grasping of the common duct as mentioned before for some anatomic anomaly or from lack of recognition on the part of the operator, may cause injury. I am satisfied from my series of cases with the teachings that, after cholecystectomy, the remaining stump of the cystic duct as well as the entire common duct may dilate. This may have had to do with trauma of the duct, because the operators in their attempts to make a perfect cholecystectomy have gone to the extreme of dissecting the cystic duct to its common duct union, thereby jeopardizing the integrity of the common and hepatic duct, both in its vascular supply and as a direct ductal wall involvement. In using the gallbladder as a tractor in demonstrating the cystic and common ducts the common duct may be so coned as to include, by clamping or tying, the surrounding area and the union of the cystic duct to the common duct. As a result a hole is left in the common duct that is so large as to be productive of a fistula for a long time and then, if closed, may produce destruction by cicatricial contraction. Then, too, by placing the clamp or ligature lower, a section of the duct may be cut, thereby leaving, on retraction of the divided ends, a gap of one-quarter to one inch in the duct's continuity.

When the vessels slip, either through the forceps blades or from the ligature, careful pressure and grasping the edges of the area guarded-

ly with forceps so that the well of blood is readily outlined will often give access to the bleeding point. No suture should be applied deeply for hemorrhage until one is sure that neither the hepatic nor the common duct is in danger of having the ligature either transfix or surround it.

Trauma results in one of two ways, both as a rule easily diagnosticated, the one with the fistula less easily than the one without. In the first instance there is a persistent fistula discharging bile in greater or less amount. In the second variety there is no leak from the abdomen or into the abdomen, but in a short time jaundice begins.

The history of the fistula-bearing type must be carefully taken and all possible information regarding the original operation must be obtained. Fistulae, in addition to the duct trauma under consideration, follow cholecystostomy, choledochostomy and cholecystectomy. In cholecystostomies there is the drainage due to improper fixation of the fundus of the gallbladder, as in the earlier cholecystostomies when the operator attached the gallbladder to the skin; also occasionally, when the gallbladder was attached to the rectus muscle, fascia or peritoneum by means of a non-absorbable material. Again, a fistula may follow where the bladder infection continues for a long time and when all stones have not been removed from the gallbladder, or when a stone has been overlooked in the common duct.

Fistulae following cholecystectomies may be due to a partial resection of the gallbladder with or without leaving a calculus or calculi. Again, a fistula results because the ligature is somehow forced off the stump or because a stone in the common duct prevents prompt healing by producing back pressure. Fistulae also may follow choledochostomy, in addition to the causes mentioned, because a stone or stones overlooked may prevent early repair; or a cholangitis requiring drainage may not allow an early repair.

The time of repair must be considered. Fistulae in any operation upon the gallbladder or ducts may persist from three to twelve weeks and close without late untoward results. I am suspicious of trauma when six or eight weeks have elapsed without repair, and become rather sure after the lapse of ten to twelve weeks. Nevertheless, a patient with a fistula discharging a varying quantity and with his support not undermined, should receive the benefit of a watchful waiting policy. Leakage into the peritoneal cavity, when no drain has been used after cholecystectomy, has occurred in my work six times, due in each instance to a ligature slipping or to imperfect closure of the cystic duct. These patients were not greatly upset and repaired very readily as all



cystic duct cases will do, if not ligated but drained. One patient whom I saw with an intra-abdominal leak, had been operated upon by a very able surgeon, had ten pints of bile removed by me on her fifteenth or sixteenth postoperative day, and five more pints seven or eight days later.

The symptoms of the fistula-bearing patients will depend on the amount of bile drainage. Several of them have been in a very fine condition at the time I saw them; one having a fistula for nine months, but discharging little; another, entirely prostrated at her tenth week because of a large leakage.

The blood condition varies from a mild anemia with or without an increase of coagulation time beyond operative procedure. Considerable loss in weight and marked prostration may exist.

In the non-leaking variety, except when the bile empties into the peritoneal cavity, the picture is marked and readily recognized. There is a history of jaundice, and of an operation, with or without jaundice in the preoperative period. The jaundice deepens, with no history of any intermittence or remittance, accompanied by prostration, loss in weight, pruritus, and clay or putty-like stools. The blood picture may present a mild degree of anemia with a slight diminution in red cells and a slight decrease in white cells; the coagulation time may be far beyond operative security, a recent one being thirteen minutes by the capillary method. I refuse to operate on any patient where the coagulation time is over seven minutes by the capillary method until it has been brought down. The urine, molasses to light amber in color, staining the linen yellow, will exhibit bile, albumin and casts.

In the type of injury where the hepatic duct does not close colossal leakage into the peritoneal cavity may take place. This was observed in the wife of a physician, who had an injury to the common duct. I saw her on the fifteenth postoperative day at which time the abdomen was distended to the size of a full-term pregnancy, tense, on percussion a flat note and on palpation a succussion wave. A cholecystectomy had been performed fifteen days previous. The temperature was within normal limits but there was an increase in the pulse rate, dyspnea and some lividity, prostration but no jaundice. The abdomen showed the scar of the cholecystectomy and a mid-low scar for some ovarian operation. The skin edges of the recent operative scar for the ovarian condition were found separated. A catheter had been placed in the wound in contact with the pre-peritoneal fat but not in the peritoneal cavity. A puncture at this point was followed by the ejection of ten pints of bile. A tube

was introduced for further drainage and on the fourth or fifth subsequent day she was admitted to my service. On examination it was discovered that there was a dull fluctuating mass in the upper half of the abdomen, chiefly in the right upper quadrant. An incision was made through the cholecystectomy scar which was followed by a discharge of five pints of bile with some spillage. A repair some weeks later was followed by prompt recovery. This excessive amount of bile in the peritoneal cavity with no resulting toxemia has caused me to feel that sterile bile in the peritoneal cavity is not a menace to our patients except by the loss of fluids and salts and the physical disturbances of distention, etc., in addition to the under par condition of the patient. I have had spillage in six other patients, but not of such a large quantity, with no dire results.

Sullivan, in a personal conversation, said his patient had lived for eight years, dying from carcinoma of the colon. In his article quoted above he contends and proves that there is a true epithelization in the duct repair cases and that the process takes place both from above and from below. With the definite results in a clinical case and his experimental proofs in his duct reproduction work on dogs, surgeons find encouragement in attacking this condition.

As a preliminary to operative treatment, the dehydrated, undernourished and decalcified patient must receive special attention. The blood should be carefully studied for coagulation time. If this is over normal, three means of improvement present themselves. The first is the introduction of lactate of lime with such nourishing foods as may be obtained. The coagulation time may be brought within safe limits by the use of chloride or glutinate of lime or by transfusion of normal blood. I am not so much impressed with the chloride of lime today as I was formerly. Nevertheless, possibly 45 to 75 per cent of the patients respond to its use. I prefer transfusion rather than the use of lime. Failing in these two methods, a combination of lime and transfusion will be necessary.

In these days of expensive donors one feels indebted to the authors for their experiments in the use of chloride of lime. I am using this in 10 per cent solutions, five to ten cubic centimeters, given daily or every other day for three or four doses, if necessary. The coagulation time is taken each day following the use of the lime. Then if the coagulation time has not come down sufficiently, the patient is transfused with 500 to 1,000 cubic centimeters of blood from his group donor. After the operation he is carefully observed by coagulation tests and, if necessary, we stand

ready to give more blood. Recall that the pre-operative condition of these patients is desperate in many instances and at all times requires surgical help. Nevertheless, these patients when properly prepared stand their operative procedure well. The fistula-bearing cases, provided the flow is not excessive, can and should be observed for a time. They may be fed the various lime salts and artificial biliary salts or ox gall.

The operative repair is a difficult procedure since the normal anatomy is thoroughly distorted by the adhesions one has to encounter, the depth of the tissues to be repaired and the great difficulty in finding the proximal hepatic duct in the non-fistula bearing patient. Several times I have found it as a small excrescence, above the liver margin, like the beginning of a blowout in an automobile tire tube. The great difficulty lies in finding the distal portion or remains of the common duct. In several of my patients it was found. At present I do not make an extended search for the remains of the duct but proceed after a moderate search to anastomose the duodenum to the hepatic stump.

The methods of repair described in the past are as numerous as the authors describing them. I do not use any special rubber tube but take the ordinary red rubber catheter of a size that will fit the hepatic duct, usually with a caliber of 16 to 20 F. The caliber or lumen of the tube is an important factor, as the diameter of the catheter may be composed chiefly of rubber walls. The tube is to be placed to remain a long time. Sullivan personally reports one which has been in place for over three years. My first patient, operated upon the second time, kept her first tube in seven weeks and had her second tube in for three and one-half months. Abdominal drainage should be eliminated, if possible. If not possible the drain should be removed in forty-eight hours. None of my patients drained more than a few hours after early removal of the drain. I am inclined to believe that the drains are prone to be harmful to repair and therefore should be removed in twenty-four to forty-eight hours. The incision in these cases may follow the original. If necessary, when a longitudinal incision had been used in the original operation, a transverse incision may be added thereto. The ordinary Perthes incision will give an excellent exposure.

Careful dissection and hemostasis with clamps and hot pads are essential. Orientation may be exceedingly difficult because of the bleeding surface, the depth and many adhesions, in addition to the fact that the anatomic and surgical landmarks are lost in cases where a cholecystectomy has been done.

Careful search at the lower end of the cystic fissure may expose a small convex surface resembling a tire tube "blow" or again the region may be occupied by a dense cicatrix. The use of a diagnostic aspirating syringe is of great value. Withdrawal of bile is followed by incising along the aspirating needle and divulsing the opening. In the event of a fistula, careful cleaning of the depth of the cavities, best done by the vacuum suction tip, will often reveal the opening which can then be enlarged with probe, forceps, etc.. A search must then be made for the distal remains and often one finds only a mass of scar tissue resembling a cord. Several authors advise a trans-duodenal search for the duct by passing a probe through the papilla of Vater when this can be found. It is easy to do a trans-duodenal search for the papilla of Vater when backed by an impacted stone, but hunting for the papilla in these patients savors of the labor of Sisyphus.

Repair of the duct immediately following its injury is, as a rule, one simply of suture, exercising the ordinary care of edge to edge apposition. It can be done without a rubber tube, provided that in the trauma no great amount, not over one-half an inch, is destroyed or excised.

Having located the hepatic and common ducts when possible, if there has been no great destruction, one sews the ends together or, in the cases where a greater amount of the duct has been destroyed, one introduces the catheter or tube and repairs over it by bringing the edges as near together as possible.

My first patient, who after eleven months required a second operation, was one of the latter varieties. I closed over the gap in the duct with the duodenum and some omental flap after sewing the catheter in with chromicized gut. I believe, in view of Sullivan's work that my tube passed too soon. All my subsequent operations have been done in the following manner:

The proximal end being found, the tube or catheter is introduced one to two inches into the liver and sewed in with one or two chromicized catgut sutures, grasping the tissues of the duct and the capsule of Glisson in the needle bite. The protruding catheter or tube is cut off so that six to eight inches remain exposed. The duodenum, in the instances when the distal duct is not found, is then attached below the hepatic duct fully one-quarter of an inch to the peritoneum covering the liver (capsule of Glisson) with two to four sutures closely placed. A flap is cut, in character like that in a gastro-enterostomy. An opening is made through the muscular and mucous coats large enough to admit the tube which, by means of its six to eight inches of length, is passed



around into the transverse portions of the duodenum, so that the tube has no kink at its entrance into the liver and gut. The musculo-mucous posterior area is sewed to the edge of the hepatic opening and the anterior to the upper edge of the hepatic opening. Finally, the peritoneum of the duodenum is sewed to the liver above the tube. The well is wiped dry, a rubber tissue drain is placed in and the abdominal wall is sutured. The subsequent care is early removal of the drain, etc.

#### CASE RECORDS

The following case records are selected from my repairs:

Case 1. The patient, a young married woman, thirty-four years of age, with a positive history of cholecystitis, was operated upon (a cholecystectomy) in June of 1917, in a neighboring state, for many stones and an appendectomy. The fistula persisted, and on October 25, 1917, another surgeon operated again. Evidently nothing was done for the excessive oozing. When I saw the patient there were two scars in the right upper quadrant of the abdomen, within two inches of each other, and bile was being discharged. Her weight had dropped from 116 to 90 pounds. This is the patient who successfully sued her operator. On December 3, 1917, repair of the common duct was effected by introducing a rubber tube, through the remains of the common duct into the duodenum and upper end of the tube into the hepaticus, building a new duct in the gap by surrounding the tube with duodenum and omentum. The tube was removed at the end of four weeks and six days. By January 17, 1918, the patient had gained sixteen pounds. She had normal stools in August. On November 14, 1918, she had some chills and varying attacks of jaundice of eight to ten days' duration. From that time she began to lose weight and became permanently jaundiced. By December 9, 1918, she was deeply jaundiced and weighed but 79 pounds. On December 9, 1918, repair was accomplished as described, by joining the duodenum to the hepatic duct flush with the liver and also attaching the duodenum to the liver. The second tube was passed practically four months after the operation. I saw this patient on November 6, 1923, and she was in excellent condition at the time of her last report to me, weighing 139 pounds.

Case 2. Another case was that of a woman about twenty-eight years of age, who came into my office in March of 1923, profoundly jaundiced, emaciated, in fearful mental and physical state, and with numerous scratches and abrasions all over her body. She had had an operation in a suburban hospital eleven months before, fol-

lowed one month later by pruritis and jaundice. On June 7, 1923, a hepaticoduodenostomy had been performed with rapid convalescence and early gain in weight. She returned to the hospital on October 15 with mild jaundice, and was observed for six days. There was marked improvement and she was allowed to return home. On November 10, 1923, she returned again with jaundice more marked, abrasions and scratch marks, loss in weight and some pain over her liver which was greatly enlarged. Roentgenograms showed the tube in its original position. Feeling that the tube had become clogged, I re-opened her abdomen on November 23 and found that the tube was well in place. On removal, which was readily accomplished, the hepatic end was found covered with crystals presenting a picture similar to that of a catheter left in the urinary bladder. On compressing the tube in its continuity, I was able to expel a material of fibrous character and consistence, and of the color of a cream paste. Upon removal of the tube there was a gush of mixed bile and pus from the liver in such quantity that a rapid diminution in the size of the liver was observed. Although the duct opening felt smooth and soft I deemed it advisable to put in another but shorter tube. This was done, and the patient made a speedy recovery from the operation.

You will observe from these histories that one of my patients required a second operation after eleven months. This was the patient in which I re-constructed the duct, and since the operation as described above she has gone eighteen years, weighing at the time of her second operation 79 pounds and recently 139 pounds. One of these patients has had slight attacks of jaundice of short duration, and reports, after seventeen years, that she is in "bully" condition. One of the patients with the tube in situ, as shown by x-ray pictures, began to develop jaundice a few months later. This was due to a plugging of the tube with mucous or salts, for subsequently the jaundice disappeared.

Following the operation there is a rapid loss of jaundice, a marked rapid mental change and a very pronounced gain in weight. The recurrences must be ascribed to contracture of the newly formed canal following the passing of the tube before proper epithelization takes place. Therefore, all attempts at fixation of the tube should be made, contrary to the earlier feeling that some material should be attached to the distal end of the tube to promote its removal by peristalsis. The great difficulty is that peristalsis will pull and push the tube without any accessory. That the tube may become plugged and obstruct the flow of bile must be considered and this requires re-

moval with or without re-introduction of another.

One of my patients, recently operated upon, had been operated upon three times previously. At the time I saw her in my office she had a fistula and marked jaundice. The first operation was a cholecystectomy and the following two were evidently not complete operations. I attempted at my first operation the Lahey method, but after a supposed establishment of a well lined fistula, the sinus closed. Her fifth operation and my second was a success; a hepaticoduodenal anastomosis was done. A subsequent obstruction occurred, and the operation for this resulted fatally.

As an aid in finding the duct, preliminary to doing a choledochostomy, and also as an aid in finding the hepatic duct "blow out," I have been using a diagnostic needle bent at an angle so that the terminal portion runs parallel to the duct. The diagnostic mounted with this type of needle is readily handled with one hand. An added suction tube, slightly bent (20 to 24 F. caliber) with the olive tip is very useful in sucking out detritus from the hepatic or common duct and more useful in doing a choledochostomy than in this type of repair. I have also had the ordinary Blake duct forceps modified so that the grasping end is not fenestrated, but is filled in as a spoon; the small stones do not escape through the fenestra but are held by the concave tips. This instrument as well as the suction tube will be found extremely useful in doing choledochostomies and in fistula repair operations which are due to impacted stones and detritus.

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## TREATMENT OF THE ANEMIAS\*

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### INTRODUCTION

The recent work of Whipple and Robschey-Robbins, Minot and Murphy, Sturgis, Isaacs, Castle, Hart, Steenbock, Waddell, Elvehjem and others has served to clarify our conceptions of red cell and hemoglobin formation. In the light of the new knowledge of hematopoiesis certain traditions that have been followed for a long time in the classification as well as in the treatment of the anemias are now considered to be inefficacious because of lack of physiologic basis.

The arsenic compounds, sodium or iron cacodylate, we now realize to be absolutely useless in the treatment of any form of anemia. Iron cacodylate in the quantities injected furnishes an insufficient amount of iron to be of any value in hema-

topoietic regeneration. There is indeed very little clinical or laboratory evidence that the cacodylates have improved the blood picture in anemia. As a matter of fact arsenic compounds, like salvarsan or neosalvarsan, must be used with great caution even in the treatment of syphilitic patients with anemia, because the administration of either compound may give rise to a further reduction in hemoglobin and in the number of red cells. Arsphenamine itself has been known to produce at times an aplastic condition of the bone marrow. Cummer emphasizes the fact that it may be imperative to resort to transfusion in order to bring the blood of a syphilitic patient up to a point at which anti-syphilitic medication may be employed with safety.

There is hardly any need to emphasize the point that successful treatment of the anemias can result only after the etiologic basis for the particular anemic state in question has been discovered. Since specific therapy is possible today in many types of anemia, an empirical approach to the method of treatment is to be deprecated. We have published elsewhere a classification of the anemias.<sup>6</sup> By simplifying this elaborate scheme of classification, we may group the anemias into the following four classes:

1. Those due to deficiency in any of the factors necessary for hematopoiesis.
2. Those due to blood loss.
3. Those due to the hemolysis or the destruction of red cells.
4. Those due to the depression or inhibition of the hematopoietic function of the bone marrow.

Such simple classification aims to bring into prominence etiologic factors which lead to rational therapy.

Our newer knowledge of hematopoiesis has resulted in the abolition of the division of the anemias into two general types, primary anemia and secondary anemia. A primary anemia is no longer one of which the cause is unknown. Pernicious anemia, formerly classed as a primary anemia, is now known to be a deficiency disease due to the absence of a specific factor found in liver. The color index, which is usually regarded as indicating pernicious anemia (primary anemia in the old sense) when it is minus one, does not always serve to differentiate between this type of anemia and the so-called secondary anemia. We cannot rely on classifications which stress histologic characteristics and laboratory findings to the exclusion of the establishment of the etiology. The patient's response to specific therapy is often very valuable in making a correct diagnosis.

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## DEFICIENCY ANEMIAS

The deficiency anemias are the ones in which specific therapy yields very favorable clinical results. The deficient substance in the hemato-poietic system is the specific required. The majority of cases fall into the following list of deficiencies:

1. A factor in liver or gastric mucosa effective in pernicious anemia and other microcytic anemias.
2. Iron effective in large doses in hypochromic microcytic anemia.
3. Thyroxin or desiccated thyroid tissue to supply the deficiency in mild hypothyroidism and in more severe cases, as in myxedema and in cretinism.
4. Vitamin B<sub>2</sub> or the antipellagra vitamin. Deficiency in this vitamin leads to an anemia removed only by specific treatment with a substance rich in this dietary factor, such as brewer's yeast or liver.
5. Vitamin C or the antiscorbutic vitamin. The anemia of scurvy is not affected by the administration of iron or of liver extract, but is prevented and cured when the deficiency causing the disease is supplied to the patient.
6. Copper, though yet of questionable clinical value for the human being, if withheld from the rat and other mammals, gives rise to a specific deficiency anemia.
7. Protein, deficiency in which gives rise to a condition known as hunger, famine, or war edema. Protein edema is accompanied by anemia. This type of anemia is rare under ordinary circumstances and is to be expected only in case of famine or in case of war when protein foods may become scarce. In connection with protein edema and its accompanying anemia, it must be remembered that hemoglobin is a protein.

When we consider the deficiency anemias from the standpoint of therapy, especially the anemia due to lack of iron or that due to lack of the factor specific against macrocytic hyperchromic anemia, we must ever keep in mind an important postulate emphasized by Minot with reference to the administration of the missing factor. Minot maintains that treatment should not consist in supplying sufficient material to remove one symptom, such as anemia, but sufficient to supply indefinitely all the demands for the potent material, and to fill the body adequately with stores of a reserve supply of the specific substance. It is this important postulate that explains the reason for prescribing large doses of iron in microcytic hypochromic anemia and large doses of liver extract when

treatment is begun on a patient with macrocytic hyperchromic anemia.

*Specific Medication in the Macrocytic Hyperchromic Anemias.*

In the group of macrocytic anemias of which pernicious anemia is the most conspicuous member, but which also includes the anemia of sprue or pellagra, and occasionally the anemia of pregnancy, the deficiency may be supplied by liver, liver extract or ventriculin. Iron is ineffectual in the treatment of these anemias. Once the diagnosis of macrocytic anemia is made, the following preparations which are available may be used:

Liver Extract (Eli Lilly) No. 343, is a very valuable preparation. Liver Extract with Iron (Eli Lilly) No. 343 contains ten grains of iron and ammonium citrate per teaspoonful.

Liver Extract with Iron (Eli Lilly) No. 55, is not to be confused with Liver Extract No. 343. The former is used only in the treatment of so-called secondary anemia (microcytic hypochromic anemia), while the latter is the specific for pernicious anemia (macrocytic hyperchromic anemia).

Liver Extract (Lederle) is a liquid in a 20 per cent wine base, ten cubic centimeters being equivalent to 100 grams of fresh liver.

Liver Extract (Parke Davis), one vial of which weighs 3 to 3.5 grams and represents the anti-anemia potency of 100 grams of fresh liver.

Liver Extract (Fairchild). Each vial represents the anti-anemia potency of 100 grams of fresh liver.

Concentrated Liver Extract (Armour). One fluid ounce represents the anti-anemia potency of 8 ounces of liver.

Liver Extract (Chappel). One hundred cubic centimeters is equivalent to 8.2 ounces of equine liver.

Autolyzed Liver Concentrate (Squibb) is a powder flavored with cocoa, one gram of which is equivalent to 20 to 30 grams of fresh liver.

All the preparations mentioned above are administered by mouth.

Liver Extract (Parke Davis) for intravenous use is made up in vials carrying twenty cubic centimeters of fluid and equivalent to 100 grams of fresh liver.

Liver Extract (Lilly) for intravenous use is a liquid preparation, each cubic centimeter of which is equivalent to 5 grams of liver.

Liver Extract (Chappel) for subcutaneous or intramuscular injection is a liquid preparation, one cubic centimeter of which represents the anti-anemia potency of 10 grams of liver.

Liver Extract (Parke Davis) for intramuscular

injection, one cubic centimeter of which represents the anti-anemia potency of 5 grams of liver.

Liver Extract (Lederle) for intramuscular injection is a solution, three cubic centimeters of which has the equivalence of 100 grams of liver.

Ventriculin (stomach tissue) may be used instead of liver or liver extract. The former supplies the intrinsic portion of the anti-anemia factor. The extrinsic portion is to be derived from the food intake, provided it is adequate from a nutritional standpoint.

Ventriculin with Iron (Parke Davis) is preferable to straight ventriculin. It contains 12.5 per cent ferric citrate. The dose is 10 to 20 grams daily.

Soluble Stomach Extract (Fairchild) is made up in vials. Each vial contains 3 grams, which is equivalent in potency to 100 grams of fresh stomach mucosa.

Extralin (Eli Lilly) is a liver and stomach concentrate. Each capsule has a potency equivalent to 20 grams of fresh liver.

Puvules Lextron (Eli Lilly) are a liver and stomach tissue concentrate (extralin) containing iron and ammonium citrate and Vitamin B.

Cofron (Abbott) is a liver preparation, each capsule being equivalent to 10 grams of liver, and also carrying  $\frac{1}{10}$  grain of iron and  $\frac{1}{250}$  grain of copper.

Liver Meal (Liver Meal Corporation) is a mixture of desiccated liver, 81 per cent, malted milk powder, 18 per cent, and powdered cinnamon, 1 per cent.

Preparations of iron, liver or liver extract containing alcohol should not be used for patients suffering from gastric or duodenal ulcer.

Owing to the fact that absorption through the gastro-intestinal tract is a variable factor in anemia, liver extracts have been developed that are of such purity that they can be administered intramuscularly or intravenously. However, we feel that it is not advisable to administer liver extract intravenously. Ten per cent of the patients receiving this form of medication develop a reaction, which is usually transient. The symptoms are tremor, chills, fever, nausea and vomiting. In almost all cases liver extract given intramuscularly is preferable. This type of administration does not give rise to local or general reactions. The liver extract, furthermore, is absorbed more slowly, and greater utilization is made of the substance injected.

The intramuscular route is indicated in patients who display a great apathy for liver or liver extract, in patients with no appetite or with gastro-intestinal disturbances, and in patients who are too moribund to take any food or medication by

mouth. This route is also indicated when there is an interference in the process of absorption through the intestinal tract or when there is an interference with storage in the liver. Surgical procedures or pathologic processes may render the small intestine less absorptive. Cirrhosis of the liver may cause loss of iron and anti-anemia factor because of the inability of this organ to act as a storehouse for the substances necessary in the formation of red cells and of hemoglobin. The muscular or intravenous route gives no loss through intestinal malabsorption and yields more rapid therapeutic responses.

Liver extract and even iron is less effective in the presence of a major or even minor infection. Arteriosclerosis in advanced age also diminishes the utilization of anti-anemia medicaments. In case of infection the amount of liver extract ordinarily administered is increased 100 per cent.

#### *Specific Medication in Microcytic Hypochromic Anemia.*

Microcytic hypochromic anemia, which results from deficiency of iron in the diet or improper absorption of iron from a complete dietary, is amenable only to large doses of iron. As early as 1832 Bland demonstrated the value of large doses of iron in the treatment of chlorosis. This method of treatment, neglected for many years, is as effective in the anemias with iron deficiency as it was in the days of Bland.

Iron salts should be administered by mouth only. In order to overcome heavy losses in an anemic patient, iron salts are given in massive doses. Murphy states that a preparation of ferrous carbonate (U.S.P.) in daily quantities of four grams sufficient to supply 400 milligrams of iron, and ferric ammonium citrate (U.S.P.) in daily quantities of three grams sufficient to supply 500 milligrams of iron, has produced satisfactory clinical results. Other clinicians prefer heavier doses.

A useful prescription for iron is the following:

R Ferri et Ammonii Citratis 5 X  
Aqueae Menthae Piperitae q.s.a.d. 5 IV

Sig: One teaspoonful in a half glass of water every three hours to be followed by lemon juice diluted with water.

One teaspoonful contains 18 grains of ferric ammonium citrate. Five teaspoonfuls a day will furnish 90 grains of the iron salt.

In order to determine the vehicle for iron and ammonium citrate, to make the preparation more palatable, Professors Leland A. Johnson and Alfred C. Andersen, of the Creighton University College of Pharmacy, tested cinnamon water,



peppermint water, methyl salicylate, tincture of capsicum, tincture of cardamon, tincture of cinnamon, compound tincture of gentian, tincture of lemon, tincture of orange, spirits of cinnamon, spirits of chloroform, spirits of peppermint, compound spirits of cardamon, compound spirits of orange, oil of anise, oil of clove, oil of sassafras, and oil of spearmint. The best ones proved to be spirits of chloroform and peppermint water, with the former the better of the two. We prefer, however, to employ the latter because of the theoretic possibility of causing liver damage by the prolonged administration of chloroform.

Ferric ammonium citrate (Lederle) is also put up in capsules with copper acetate ( $\frac{1}{40}$  grain per capsule). Six to twelve capsules a day furnish 42 to 84 grains of the iron salt per day. Each dose should be followed by lemon juice diluted with water.

Blaud's pills are valuable, but their use is limited in a practical sense, since 42 pills are necessary to make up as much iron as is contained in 90 grains of iron and ammonium citrate. If Blaud's pills are administered, they must be fresh, soft and easily broken up. Old dried up pills fail to disintegrate in the digestive tract with the result that absorption of iron is poor. Large doses of Blaud's pills have another disadvantage. Dean Howard C. Newton, of the Creighton College of Pharmacy, calls attention to the fact that Blaud's pills in heavy doses have a laxative action. In the preparation of Blaud's pills ferrous sulphate and potassium carbonate are allowed to interact. The resulting by-product, potassium sulphate, is not removed from the final product. Potassium sulphate dispensed as Glauber's salt has a definite laxative action.

Ferrous salts (ferrous chloride in capsules, ferrous carbonate and ferrous sulphate) are more easily assimilated, although good clinical results are attained by the use of ferric salts, especially in the form of iron and ammonium citrate.

Iron bound organically is not available for hemoglobin formation. Hemoglobin or blood itself is ineffective in the treatment of an anemia related to an iron deficiency. Iron bound loosely, as in an inorganic salt like iron chloride, sulphate or carbonate, or as in organic acids like iron lactate or iron and ammonium citrate, is the type of iron that should be prescribed.

Foods rich in iron are not practical in the treatment of anemia in the emergency stage. Foods at best contain very little iron. To get the massive doses of iron from the daily diet would require a vast amount of food material. Furthermore, we must take into consideration the fact that it has been recently reported that the iron in food

may or may not be available for hemoglobin formation. Elvehjem, Hart and Sherman have reported that estimations of available iron show an availability of over 60 per cent in beef and pork liver, and in beef and pork heart muscle. Beef skeletal muscle and blood show an availability of 50 per cent. The iron in oysters, spinach and alfalfa is available only to the extent of 25 per cent or less. The Wisconsin investigators demonstrated that hemoglobin regeneration was proportional to the available iron in the food supply. Until we get more data as to the content of available iron in food, it is better to give iron through prescription rather than through food. Food iron is valuable, however, in the maintenance treatment of anemia after the normal hemoglobin and red cell values have been established.

Anemia renders the intestinal tract less efficient as an absorbing mechanism. The derangement in the function of absorption is of such a nature as to cause considerable loss of iron or of the anti-anemia factor specific against macrocytic hyperchromic anemia. One of the factors regulating absorption, especially of iron, is gastro-intestinal acidity. Hypoacidity or anacidity accompanying the anemias interferes with absorption. It is therefore advisable to use together with iron some type of acid medication or acid foods. Hydrochloric acid is very valuable, but its disadvantage lies in the fact that only a very small amount can be taken. Lactic acid (0.4 per cent) mixed up in beverages, and citric acid in the form of lemon juice can be administered in greater doses than hydrochloric acid. It is advisable to take iron before meals when the gastric acidity is high and to follow up the dose with some diluted lemon juice. Buttermilk or acidified milks should be recommended to the anemic patient.

#### INCLUSIVE MEDICATION

In the laboratory conditions for an experimental animal may be arranged with precision to produce a classical picture of a desired deficiency disease. With the human being not controlled like the experimental animal, a deficiency disease that develops is likely to be of a multiple type. A person afflicted with beriberi may have some symptoms indicative of scurvy. One with a definite syndrome characteristic of an anemia due to lack of the anti-anemia factor specific for macrocytic hyperchromic anemia, and characterized by a paucity of red cells, may also show indications of a deficiency in iron. It is for this reason that in treating the condition, it is imperative to provide for the deficiency indicated by the major symptoms and at the same time provide for all other possible deficiencies. In this way only can

there be hope of attaining maximal therapeutic results. As an illustration of the importance of inclusive medication, we cite the experiences of Maurer, Greengard and Kluver. They report that copper and iron without other therapy failed to produce a remission of infantile tetany, whereas subsequent administration of liver extract, added to the iron and copper, cured the condition. Murphy maintains that liver extract administered intramuscularly has no apparent affect on the formation of hemoglobin when given alone, but when given in combination with large doses of iron, there results a more rapid response of the hemoglobin and blood cells than occurs with the use of a similar amount of iron alone. The administration of large doses of iron during the treatment of pernicious anemia with liver extract prevents the development of a deficiency in iron as a result of the rapid maturation of erythrocytes produced by the specific therapeutic agent.

Murphy also advises whole liver with iron medication, since the combined effect is greater than that of either given alone. Even though iron or liver extract or ventriculin is administered, liver should be included in the diet at least two or three times a week. Liver, besides being rich in iron and in the anti-anemia factor specific for macrocytic hyperchromic anemia, is also rich in other factors involving hematopoiesis, such as superior protein, copper, and vitamins. Liver stores practically all the vitamins with the exception of Vitamin E.

#### COPPER MEDICATION

From the clinical point of view, the excellent work of Hart, Steenbock and Elvehjem on the existence of a copper deficiency anemia in rats which have been maintained on an exclusive milk diet is as yet not applicable to man. There have been some reports in the literature which favor the use of copper in certain types of anemia. In the human being, copper is not usually prescribed. Many of our foods known to be rich in iron are also rich in copper. Many of the iron salts used in medication contain traces of copper. Gorter found that ferrous sulphate contains less than 0.002 mg. per gram, ferrous lactate 0.005 to 0.006 mg. per gram, reduced iron 0.009 to 0.11 mg. per gram, saccharate of iron (10 per cent) 0.6 to 0.8 mg. per gram, and pulverized iron 0.06 to 0.75 mg. per gram. There are several drug preparations on the market containing iron and copper, or liver extract with iron and copper. The recent clinical investigations of Sachs, Levine and Fabian do not justify the use of copper in the treatment of anemias. In a large series of patients suffering from various types of anemia, the blood copper

level almost invariably was markedly elevated. In other words, although copper is involved in the process of hematopoiesis, as demonstrated by the compensatory hypercupremia of the anemias, the body storehouses are very rich in this element and are able to supply the deficiency even over long periods of time. Furthermore, since only minute quantities of copper are necessary, the possibility of a deficiency is remote.

#### EMERGENCY AND MAINTENANCE TREATMENT

Treatment of anemia is divided into two stages; first, emergency treatment, during which massive doses of iron or liver extract or massive doses of each are administered; and second, maintenance treatment during which small doses of liver extract or iron or both are administered or in the same doses as in the emergency period but at less frequent intervals. The emergency dose of iron is 90 to 120 grains of iron and ammonium citrate per day. The small doses of iron salt prescribed in the U.S.P. are valueless, since they do not yield increase in hemoglobin or in red cells. When hemoglobin has reached normal limits the maintenance dose is prescribed.

With regard to liver extract we may take the directions of the manufacturer to illustrate emergency and maintenance treatment. On the package of Liver Extract 343 (Eli Lilly) is stated that during the initial period in the treatment of pernicious anemia three level tablespoonfuls a day or more are to be prescribed. When the blood picture has returned to normal the maintenance dose may be reduced, depending upon the blood picture and general condition of the patient.

The container of Liver Extract Intravenous (Parke Davis) states that the initial dose is 20 cubic centimeters intravenously at intervals of one week, at a rate of injection not to exceed two cubic centimeters per minute. The maintenance dose to prevent relapse is one injection at an interval of four weeks.

Autolyzed Liver Concentrate (Squibb) is a palatable, stable and water soluble powder flavored with cocoa. The initial period of treatment in pernicious anemia necessitates a dosage of from four to six or more teaspoonfuls daily, divided into two or three doses, during the first ten days. Thereafter only two level teaspoonfuls daily are required as the maintenance dose.

According to Sturgis, liver extract by mouth is given in the emergency period in an amount equivalent to 600 grams of fresh liver. When the blood reaches normal limits, the dose is cut down for about a week to an equivalent of 300 grams of liver.

Murphy uses one large intramuscular dose of



liver extract (twelve cubic centimeters equivalent to 400 grams of liver) during the first twelve to twenty-four hours. The erythrocytes with this method show an average increase of 110,000 per day during the first week and during a period of twenty-eight days about 100,000 per day in patients having an initial cell count of two million or less. These facts suggest that when a potent anti-anemia substance is given in excess of immediate needs, the unused material is stored for later utilization. Following the initial large dose, subsequent injections of three cubic centimeters of liver extract are made at intervals of a week until the blood picture reveals the presence of a normal red cell count of 5,000,000 for men and 4,500,000 for women.

Sturgis in a very severe case of pernicious anemia injects five cubic centimeters of liver extract intramuscularly into the buttocks. This dose is repeated in two or three days if necessary. His usual procedure, however, is to inject two cubic centimeters of liver extract intramuscularly each day for ten days, after which the dosage is cut down to four to six cubic centimeters for half a week, and finally four to six cubic centimeters once a week. Liver extract (intravenously) is given according to Sturgis once a week in quantities of 20 cubic centimeters, the amount derived from 100 grams of liver. The maintenance dose is 20 cubic centimeters every three to six weeks. Concerning ventriculin dosage, it may be stated that Sturgis administers 40 grams daily by mouth and finally lowers the dose to ten grams six days a week.

With reference to dosage, emergency or maintenance, it must always be kept in mind that we should never follow blindly any special or set schedule of medication. Emergency doses should be continued until the blood picture becomes normal or almost normal. Maintenance doses must be of such quantity and frequency as to hold up the blood picture to its normal level. Every patient with anemia presents his own therapeutic problem.

#### THREE COMMONLY UNRECOGNIZED SPECIFIC TYPES OF DEFICIENCY ANEMIA

Besides the anemias due to deficiency in the factor specific in macrocytic hyperchromic anemia or due to deficiency in iron, we have three other specific anemias: One of these is anemia due to the lack of Vitamin B<sub>2</sub>. The specific treatment is brewer's yeast, exceedingly rich in Vitamin B<sub>2</sub> as well as in Vitamin B<sub>1</sub>. Another is the anemia due to lack of Vitamin C. The specific treatment is a rich source of this vitamin. Citrous fruits, (oranges, lemons, and grapefruit), raw or canned

spinach, tomatoes or green peas, cabbage and green peppers. For the sake of simplification, we may limit our source of Vitamin C to the citrous fruits. A third form is the anemia due to lack of thyroid hormone. The specific is desiccated thyroid. Vitamin B<sub>2</sub>, Vitamin C and thyroid hormone act as specifics in the sense that all other anti-anemia factors must be provided at the same time in the diet or in the form of medication. The deficiency anemias require medication that is as specific as quinine is for malaria and as diphtheria antitoxin is for diphtheria. The specifics now employed in the various types of deficiency anemia are liver extract or ventriculin, iron, acid, Vitamin B<sub>2</sub>, Vitamin C, and desiccated thyroid. Ultraviolet or sunlight is a useful adjunct in anemia therapy.

#### MILK ANEMIA

From a practical standpoint two types of anemia have assumed great importance in recent years. One is milk anemia and the other depletion anemia.

Milk is very poor in iron, in copper and in the factor efficient in the prevention and treatment of macrocytic hyperchromic anemia and found in great abundance in liver. Milk is so definitely and markedly anemia-producing that investigators have used this food as a simple and rapid method for developing anemia in experimental animals. Milk anemia may occur in infants, in young children and even in adults in which milk and milk products form by far the larger portion of the diet. Anti-ulcer treatment and treatment of idiopathic epilepsy by means of the production of ketone bodies in the blood and urine, involve the use of diets built around a milk and cream base. It is imperative to prescribe anti-anemia medication with this type of diet. In the case of gastric or duodenal ulcer, it must be clearly recognized that anemia delays the healing of the lesion.

#### DEPLETION ANEMIA

Depletion anemia is that anemia resulting from heavy losses in blood as a result of chronic or acute hemorrhage. The individual is extremely pale, the sclerae are grayish, and the extremities cold and clammy. He or she has the typical appearance observed in de-sanguination. A common form of depletion anemia is the one resulting from menorrhagia. Both the hemoglobin and the red cells may be very low. The immediate treatment may call for a blood transfusion to be followed later by anti-anemia treatment. In depletion anemias with very low hemoglobin and with an approximate cell count of 1,000,000, it is important to do a blood transfusion. Blood transfusion may save the life

of the patient because response is immediate. Anti-anemia medication does not produce an immediate increase in hemoglobin or in red cells. The increase may start thirty-six to forty-eight hours or longer, following the medication. The patient in the meantime may reach a fatal end. The immediate advantage of transfusion should be followed up by anti-anemia treatment. Massive doses of iron, intramuscular liver extract, brewer's yeast (Vitamin B<sub>2</sub>) and orange juice (Vitamin C) should be administered. The diet should contain an adequate amount of superior protein, and this may be given partly in the form of liver. After the emergency is over it may become necessary to use x-ray or radium to prevent a recurrence of depletion anemia through subsequent hemorrhage.

#### HEMOLYTIC ANEMIAS

The treatment of hemolytic anemias varies with the underlying cause. If the cause is toxic absorption from infestations, treatment must be directed toward removal of the noxious parasites; if due to absorption of a drug, its use must be discontinued. Where hemolysis results from an inherent weakness of the erythrocytes, as in acholuric jaundice, treatment is as yet of no marked benefit. Occasionally hemolysis results from over-activity of the reticulo-endothelial system. In such case, splenectomy may be indicated. Besides acholuric jaundice, splenectomy is often resorted to in Banti's disease and in thrombocytopenic purpura. Generally speaking, it may be suggested that the cause of a particular anemia should be removed if possible, while administering anti-anemia treatment. We must stop the bleeding, if hemorrhage is the cause; we must treat the infection, if bacterial toxins depress the mechanism of hematopoiesis or destroy its products.

#### TREATMENT IN VAGUELY DEFINED ANEMIAS

In any anemia where the deficiency is not apparent, or where the deficiency may be multiple and the hemoglobin and red cell count may be low, it is advisable to prescribe liver extract or liver, iron salts, Vitamin C (orange juice), and Vitamin B<sub>2</sub> (brewer's yeast). Desiccated thyroid extract is to be prescribed when symptoms of thyroid deficiency exist.

#### ANEMIA AS A BIOLOGIC HANDICAP

Anemia is one of the most common minor ills of our generation. It is a condition which imposes a physiologic burden upon the organism. It leads to general debility and to loss of resistance to infection. The maintenance of antibodies in

the blood depends upon the competence of myeloblasts, lymphoblasts and reticulo-endothelium. Individuals maintain health and recover from infection only when antibody formation is adequate. Diminished nutrition handicaps the cells in their production of antibodies, thereby making the individual more susceptible to disease and less able to recover from disease. The sedimentation rate of erythrocytes is hastened in anemic patients. The rate of sedimentation is a very good index of the patient's ability to carry added physiologic burdens. Anemia leaves its dire effect on the circulatory system. Paul D. White states that anemia, whether secondary or primary is, if severe, a heavy burden for the heart in that the myocardium is directly affected. Dilatation may result, murmurs may appear, and angina pectoris may be precipitated. According to Liljestrand and Stenström, and also Harrison and Blalock, anemia increases the cardiac output. An examination of the circulatory system of patients with anemia often reveals certain conditions indicative of increased work on the part of the heart. These are:

1. Moderate tachycardia.
2. Increased intensity of the first sound at the cardiac apex, and of the aortic and pulmonic sounds.
3. Apical and pulmonic systolic murmurs.
4. Increased peripheral pulsation.
5. A full-bounding and at times a collapsible pulse.

These facts indicate that the heart is attempting to carry on its work under difficulties. The compensatory increase in cardiac output which occurs in anemia, if continued for a number of years, is likely to cause an overworked heart finally to succumb. Relatively mild and common degrees of anemia should therefore be regarded as contributory factors in the production of cardiac failure.

Anemia is a handicap during anesthesia and during surgical intervention. Patients with a deficiency in blood platelets are likely to experience secondary hemorrhages following operation. Surgical shock occurs more frequently in the anemic individual. Acidosis and infection are more prone to develop postoperatively. Many anemic patients have reserve energy sufficient for recovery, but no patient with a blood deficiency ever made as rapid a recovery as a patient with normal blood. Severely anemic patients may even die because of their inability to carry the strain of anesthesia and operation.

Anesthesia lowers markedly the oxygen-carrying power of the blood. The oxygen-carrying



power of the blood is, a measure of intact hemoglobin. The blood of healthy individuals subjected to one-half hour of anesthesia with ether, nitrous oxide, or ethylene, shows a drop of from ten to twenty-five per cent in oxygen-carrying power. The decrease in hemoglobin capable of carrying oxygen reaches the lowest level a few hours after the administration of the anesthetic. A period of five to ten days elapses before the oxygen-carrying power returns to normal. The loss in the oxygen-carrying power is due to the fact that hemoglobin is so altered that it cannot combine with oxygen. The icterus index, an index of red cell destruction, is increased following anesthesia. Healthy individuals twenty-four hours after anesthesia, lasting one-half hour under ether, nitrous oxide or ethylene, have an icterus index from three to four times the normal. Patients whose oxygen-carrying power is already low will have their intact hemoglobin reduced still further by the anesthetic and the loss of blood incidental to the operation. Healthy individuals require more than five days to restore their hemoglobin to normal following anesthesia; and anemic patients require much more time. A reduction during anesthesia of three volumes per cent, from the original twenty-one volumes per cent of the oxygen-carrying power of the blood in a healthy person means a loss of only fourteen per cent. The same reduction of three volumes per cent in a patient whose oxygen-carrying power is only twelve means a loss of twenty-five per cent in his intact hemoglobin. The heart of the anemic patient, perhaps handicapped by varying degrees of myocardial degeneration, has the additional burden of anesthesia and operation to carry.

An apparently healthy person with a blood picture that shows a hemoglobin content and erythrocyte count below normal is existing under a biologic handicap. A deviation from the normal hemoglobin value and from the normal red cell count, however slight, does not lead to optimal health and calls for corrective measures. Many a person possesses health that is subnormal, suffering from vague symptoms, including gastro-intestinal upsets, atypical of any specific disease, general debility, fatigue, lack of ability to concentrate on work to be done, depression of spirits, or irritability. Such a person is frequently very much improved if his hemoglobin and red cell count are raised by anti-anemia medication.

Anemia is often considered by the clinician as worthy of treatment only when there is a marked decrease in hemoglobin or in red cells, or in both. That is a wrong point of view. We must always keep in mind that the greatest number of the

major diseases with which man is afflicted usually creep in through the accumulated effect of successive slight irritations, defects or deficiencies, or through the long continued operation of apparently insignificant factors. Health is more frequently undermined by the gradual operation of constant though disregarded causes of a slight nature rather than by any great and unusual events that make a sudden appearance. Not only should we aim to keep hemoglobin and erythrocytes in the blood of a healthy person on the highest level possible, but we should aim in the treatment of any disease to remove a coexisting anemia, a barrier to prompt and complete recovery. Anemia delays the healing of wounds, prolongs the period of convalescence, and increases the tendency to intercurrent infection.

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## CORONARY THROMBOSIS\*

A. G. FELTER, M.D., Van Meter

How often are we reminded that heart disease is on the increase. Not only do our reports on vital statistics show that cardiovascular diseases are responsible for more deaths than any other manner of illness, but as we sit in our consultation rooms we are impressed with the increasing frequency of cardiovascular complaints. In our own experience we have noted an astounding incidence of coronary artery disease in the past few months. There are the coronary sclerotic cases, the anginoid cases and the cases of coronary thrombosis, so often but not always resulting in sudden and immediate death. The field of heart disease is now so broad that we find ourselves fairly overwhelmed with the futility of attempting to cover even so small a phase as coronary thrombosis in anything like a comprehensive way in the allotted time. After a very brief resumé of the history, etiology, pathology and symptomatology we will discuss the treatment as we see it, and present some cases that are now or have been under observation and care for coronary thrombosis.

In 1698 Chirac had tied the coronary artery of a dog and had observed that the heart ceased to beat. Morgagni in 1761 was familiar with a diseased condition of the coronaries, and himself died later of a ruptured heart. It has been thought that the first case diagnosed during life was probably that described by Hammer in 1878. Finally Herrick in 1912 presented a clear picture of the syndrome and suggested that some patients probably recovered after acute obstruction of a coronary artery.

In the usual case of coronary thrombosis there is first an atheroma of the coronary artery. This consists of a senile softening with areas of fatty infiltration and degeneration in the intima or endarterium. At once there begins to be an irregular thickening and encroachment upon the lumen of the vessels, and when arteriosclerosis has further developed with deposit of lime salts, the vessel becomes more brittle and plaques may break off and ulcerations occur inviting the formation of a thrombus as the blood flows over the injured area. We then have a blood clot within a vessel which should supply circulation to the heart muscle. If a vessel is occluded, infarction of its distribution area occurs, and with it, weakening of this area and interference of function. The extent of pathology varies greatly. In some cases a thrombus suddenly developing causes sudden death, either from an acute infarct or perhaps from a

reflex affect resulting in asystole. Again, a thrombus with an infarct of no smaller size may form so gradually that no acute symptoms are noticed. Life has been known to continue in spite of chronic occlusion of both coronary arteries. One of three things is likely to occur. First, if the occlusion is sudden and of a large vessel, infarction, necrosis, and rupture of the heart may occur. Second, if the occlusion does not cause necrosis and rupture it will at least cause infarction, and, as the coronary thrombus occurs most commonly along the descending branch of the left coronary artery near its mouth it usually causes infarction of the wall of the left ventricle near the apex and this may also include a small portion of the lower part of the interventricular septum. In this case the endocardium over the infarcted area is prone to accumulate thrombus formation which in turn can be productive of emboli and readily cause sudden death. Third, there are many cases in which fibrosis occurs and heals, leaving a more or less firm scar at the site of the infarcted area. Lewis states that the mortality in the stage of acute illness is generally estimated at about 50 per cent.

What then is the cause of the initiatory atheroma and arteriosclerosis? It has been variously attributed to faulty metabolism, high protein diet, overwork, worry, infection and heredity, also to combinations of these factors. There seems to be evidence in favor of each, but probably the best answer as to the cause is that it is due to the modern, eternal, everlasting, effort to get an eight cylinder performance out of a four cylinder motor. Men are more often affected than women, it would seem; often robust professional men, men who are alert, sensitive and overworked. In one hundred clinical cases of cardiac infarction Parkinson and Bedford in 1928 reported ninety-three in males and seven in females. This ratio would seem to be a little high. Any condition, such as diabetes and hypertension, that tends to foster arteriosclerosis increases the liability to coronary occlusion through coronary sclerosis. Most of the cases occur between the ages of forty and seventy, although Jamison and Hauser report a case in a boy eighteen years of age, who had extensive arteriosclerosis and a thrombosis of the right coronary artery. In the fewer cases caused by embolism from valvular vegetations or luetic aortitis the occlusion may occur at an earlier average age.

The symptoms are characteristic. There may be sudden, severe, exhausting pain, radiating to one or both arms or to neck, head or back. The pain may be felt over the heart or referred to the lower sternum or epigastrium. The feeling is variously described as crushing, vise-like, pressing

\* Delivered before the Mercy Hospital Annual Clinic, Des Moines, June 1935.



in, et cetera. There may be a feeling as if one could not get one's breath. In severe cases there may be sweating, vomiting and collapse. The pulse becomes rapid and feeble. The blood pressure drops. Very soon moist râles appear at the bases of the lungs and about the pericardium. Within twenty-four hours there is an increase in temperature which varies from about 99 to 103 degrees or over, according to the amount of infarction. The leukocyte count is likewise increased. Slight effort may cause pallor. A pericardial friction rub may be very significant. It has been found that a characteristic change appears in the electrocardiograph a few hours after the onset of cardiac infarction, consisting of an elevation of the take-off of the RT interval above the base line, this being known as Pardee's sign. After a few days the T wave tends to flatten out and an inverted T wave remains for weeks or months, either returning to normal or persisting indefinitely.

The prognosis may depend on several factors, including:

1. Size of artery occluded.
2. Rapidity of occlusion.
3. Extent of thebesian circulation and richness of anastomosis.
4. Effectiveness of treatment.

A sudden recurrence of leukocytosis during the course of the disease may signify a septic infarct and a bad prognosis. A rising nonprotein nitrogen is said to portray a failing battle, as is also a permanently elevated nonprotein nitrogen.

The treatment of coronary thrombosis may be divided into three phases: first, prophylactic; second, the management of the acute illness; and third, the management of the improved cases. It is said that there is no specific treatment. If I were to name one I should say first, last, and all the time—rest. The man who has coronary sclerosis with chest pain on exertion must be tactfully taught that he is a cripple. He must be led to see that he should no more go on with the increasing stress and strain of business worries and heavy physical exertion than he should go on reading without the aid of glasses if his hyperopia increases. Yet extreme care must be exercised that our patients are not put on unlivable diets and frightened into a neurasthenic state.

During the acute illness absolute rest is imperative. Night and day nursing is required to avoid voluntary effort or exertion. One of the patients we are showing today had an embolism with what seemed would be a fatal result, after getting up to get a urinal while the nurse was out of the room. Another patient said that he could not raise his hand from his side without the characteristic epi-

gastric distress or weak feeling, as he described it. Morphine is always indicated and frequently in large quantities until the pain is controlled. Later, physical and mental relaxation may be maintained by various sedatives as pentobarbital sodium, phenobarbital and others. Digitalis in guarded doses is indicated to tone up the weakened heart musculature. Coronary dilators, so-called, as one of the euphyllin groups or theobromine or theocalcin would seem to be theoretically right, and we feel do help materially in bettering the myocardial circulation, relieving discomfort, and facilitating healing by fibrosis.

Recently Barack and Levy summarized favorable response to oxygen therapy in acute coronary thrombosis as follows:

1. Subjective improvement of pain and restlessness.
2. Cyanosis better.
3. Breathing may be improved.
4. Temperature fall.
5. Fall in pulse rate.
6. A recurrence of these symptoms if oxygen is removed before acute stage is past.

We have not used the latter treatment. We do feel that the patient should be isolated and assiduously protected from effort, excitement and worry.

The management of the improved cases is purely the supervision of the manner of living.

We will pause to say very little in the way of differential diagnosis. Let us permit the press to continue to make the age-old diagnosis of "acute indigestion," but let us no longer consider this caption a medical term. We may wonder at times if we have biliary colic, a dissecting aneurysm, a pulmonary embolism, or a perforated ulcer, but a history of former symptoms or absence of symptoms in line with these, and a rapid check-over of physical findings will soon convince us of the true nature of the case.

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## ROCKY MOUNTAIN SPOTTED FEVER

### REPORT OF A CASE

JOHN R. RANKIN, M.D., Keokuk

While Rocky Mountain spotted fever is no longer considered to be a rare disease in Iowa, there having been twelve cases reported since June 5, 1933, nevertheless I believe the disease is sufficiently uncommon to warrant the report of another case. This is the first case, so far as is known, to be reported from southeastern Iowa.

The patient, a white female child, four years of age, was first seen in the office on the morning of July 3, 1935, being carried in in the arms of her mother. She was stuporous and difficult to arouse. Temperature was 104.6 degrees, pulse 130, and



respiration 30. An examination revealed moderate edema of the cheeks, eyelids, hands and feet. There was a fine pink rash over the entire body, except the face, resembling the rash of German measles. The pharynx and tonsils were moderately injected.

The mother stated that on June 27 the child ate some green grapes, to which she attributed the present illness. The next morning the child vomited greenish fluid, appeared listless and drowsy, and had a temperature of 102 degrees. No diarrhea was present at any time. A doctor was called from a nearby town (the family lived on a farm three miles from Montrose, Iowa), who prescribed for the patient. On June 30 the mother first noted a rash, which she thought was German measles, on the hands and feet which spread up the extremities to involve the chest, abdomen and back. Temperature continued elevated between 102 and 103 degrees. No further vomiting occurred, and as mentioned before there was no diarrhea, but the drowsiness persisted. On July 2 the mother noted a swelling of the face, hands and feet, and the child seemed more alert. No anuria was noted. On July 3 the child became more stuporous, the fever seemed higher, and the edema more pronounced. It was at this time that I first saw the child.

Due to the edema of the face and extremities, the high fever, the stupor, and the rash, I suspected an acute nephritis secondary to German measles, and advised hospitalization, which was done. Laboratory findings on admission were as follows: urine, specific gravity, 1.020, a trace of albumin, and a few hyaline and granular casts; white blood count, 10,400; with 72 per cent polymorphonuclears, 20 per cent lymphocytes, six per cent large lymphocytes, and two per cent eosinophiles. The temperature, pulse and respiration were the same as observed in the office. Treatment consisted of high colonic irrigations, catharsis, hypodermoclysis of Hartman's solution, and fluids by mouth.

On the evening of the day of admission, the temperature rose to 105 degrees, the highest during the illness, but stayed consistently above 102 degrees for the next seven days. A urinalysis on July 5 was entirely negative, raising a question of doubt as to the diagnosis of acute nephritis, although the edema persisted. On July 6, the ninth day of illness, petechial hemorrhages appeared on the feet, legs, hands and forearms, which gradually enlarged in size and spread to the trunk. A toxic purpura hemorrhagica was suspected at first, although there was no bleeding from any part of the body. The child was still in a semi-comatose condition, and feedings had to be forced.

On July 8, Rocky Mountain spotted fever was first suspected, and a specimen of blood was obtained for a Weil-Felix test, which was reported positive in a dilution of 1:160. Questioning of the parents did not reveal a history of seeing or removing any ticks from the child, although she, with a sister and two brothers, had been playing in the brush surrounding their home. On July 10 a recheck of the blood and urine was made, with the following findings: red blood count, 4,180,000; white blood count, 37,200, with 85 per cent polymorphonuclears; hemoglobin, 65 per cent; urinalysis negative, except for six red blood cells per field. On July 12 another Weil-Felix test was done, and was reported positive in dilutions through 1:320. The temperature still ranged between 101 and 104 degrees, although the edema was gradually subsiding, and the stupor was diminishing. The spots had now assumed a reddish-brown color, and ranged in size from one-half to two centimeters in diameter.

The patient gradually improved, and the temperature fell by lysis, reaching normal on July 17. She was discharged from the hospital to the home of a nearby relative to convalesce on July 18, twenty-one days after onset, well except for a few spots chiefly about the elbows, which were fast disappearing.

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## ROCKY MOUNTAIN SPOTTED FEVER

### REPORT OF A MILD CASE

ROY D. STONE, M.D., Sully

The patient, a boy seven years of age, was first seen on July 24. For several days previously he had complained of soreness and vague pains in his abdomen which seemed to be accentuated by muscular movements such as walking upstairs. On July 24 he had vomited. He had been sleeping well and complained but little about a vague "stomach ache."

Physical examination was made in the evening at which time he had a temperature of 100.6 degrees; respiration 20; and pulse 110. The skin was of a normal color and there were no eruptions. The conjunctivae were injected as were the sclerae. The pupils were equal and the optic reflexes normal. The nasal mucous membranes were somewhat injected. His tongue was very red and the papillae were elevated. The pharynx was injected and the oral mucous membranes showed a few petechial hemorrhages. The tonsils were mildly injected. The sub-mandibular nodes were palpable, as were the nodes along the anterior border of the sternocleidomastoid. The nodes were not tender. Chest expansion was normal; percussion note resonant throughout; breath

sounds were physiologic; there were no râles. The heart was not enlarged to percussion; there were no murmurs, but a persistent tachycardia. Examination of the abdomen showed no tympanites, but a generalized mild tenderness which was accentuated by movements which stretched the abdominal muscles. There was no rigidity. The urine examination was normal. The reflexes were normal.

On July 27 the patient had developed some soreness of the shoulder muscles. At this time his temperature was 100.4 degrees and his pulse 100. His tongue had become gray and coated and had begun to slough leaving red crescent shaped areas. Temperature was taken four times a day and there was a morning drop. At no time was the temperature above 100.6 degrees. Whole blood was sent to the laboratories at the University Hospitals, Iowa City. The laboratories reported a negative Widal, but a positive Weil-Felix reaction. A laboratory diagnosis of Rocky Mountain spotted fever was made. By the fourth of August, about eleven days after the onset of the symptoms, his temperature had returned to normal, the muscle soreness had disappeared, and the boy felt fine. His tongue was still somewhat coated and sloughing and this condition continued during the two following weeks. At no time during his illness were there any neurologic manifestations. Reflexes were always normal. There were no areas of hypersensitivity, and he slept well. He was ordered to bed during the time his temperature was elevated, but he never was acutely ill. There is no specific treatment for this disease and the patient was treated symptomatically.

The boy never had a temperature over 100.6 degrees, and the temperature returned to normal about the eleventh day of his illness. Tachycardia was present at first but the heart returned to a normal rate by the eleventh day. The patient was mildly constipated. The conjunctivae and sclerae were injected during the first eight or nine days of the illness. His tongue was red at first with papillary elevation and then became coated and sloughed for about three or four weeks. There were some petechial hemorrhages manifest on the oral mucosa. There was never any definite skin eruption. There were no nervous manifestations. The urine was always within normal limits. In this case there is no definite history of tick bite. However, the boy often rode with his father, who delivered gasoline to farmers, and had had ample opportunity to be exposed to ticks. He played with lambs at different times and had a dog for a pet.

The March 1935 issue of the JOURNAL of the Iowa State Medical Society carried a report of

five cases of Rocky Mountain spotted fever occurring in Iowa during 1932-1933. Each of these cases showed a definite symptomatology and answered the classical descriptions of the disease. The patients were all acutely ill. They all had severe chills. There was in each case a definite skin eruption which started on the wrist and ankles and spread over most of the body. In each case the temperatures were as high as 103 and 104 degrees. One of the cases was fatal and the pathologic findings confirmed the diagnosis. In four of the five cases there were definite neurologic manifestations. The reflexes were hyperactive, and ankle clonus was present; in three there was a suggestive Kernig's sign; all patients were irritable; and there was generalized muscle tenderness. These cases seem to correspond closely to the descriptions of the cases of Rocky Mountain spotted fever that occur in Montana, Idaho, and Utah.

This particular case seems to be unique in that there was never a definite skin rash and the temperature was never over 100.6 degrees. There were no neurologic symptoms and the boy was never very ill. We may then conclude that Rocky Mountain spotted fever may be found in Iowa, and that it may be found in both a serious and a mild form.

One may find a detailed description of the history of the disease in a paper by Dr. Carl F. Jordan, epidemiologist for the State Department of Health.\* In brief, Dr. Howard Taylor Ricketts in 1907 demonstrated that the disease was spread by infected wood ticks. The tick harbors the germ or virus and transmits it to its young. The larvae feed on rodents such as ground squirrels and later pass through a dormant period and then emerge as young ticks which attach themselves to large animals and man. The adult tick may survive for two or three years without feeding.

\* Jordan, Carl F.: Rocky Mountain Spotted Fever in Iowa. Jour. Iowa State Med. Soc., xxv:142-145 (March) 1935.

## THE PRESENT STATUS OF THE MANAGEMENT OF MENINGITIS SECONDARY TO OTITIC OR SINUS INFECTIONS\*

JAMES A. DOWNING, M.D., Des Moines

There are two types of meningitis: the acute fulminating meningitis, which we know, and which is usually fatal, and localized meningitis, where we have a chance to step in and help. Several years ago, Dr. Winnett called me to see a patient. She had all the symptoms of acute laminitis. I

\* Presented before the Eighty-fourth Annual Session, Section on Ophthalmology, Otology and Rhinolaryngology, Iowa State Medical Society, Davenport, May 8, 9, 10, 1935.



opened the drum member and sent her to the hospital, and she died in twenty-four hours. She had fulminating leptomeningitis. I remember also a boy who became sick on Friday and was brought to the office on Saturday, with acute frontal empyema. He died on Saturday. I saw a youngster a few years ago who had a discharge of the ear of three weeks' duration. He had a stiff neck and a high temperature and a meningeal cry, and all the evidences of meningitis. He was left in the hospital with the wound wide open, and he recovered. Those are the two types, the one in which Nature provides a chance for drainage, and the acute fulminating meningitis in which we have no chance at all.

The second point is the surgical route of infection. Osteomyelitis of the bony walls of the sinuses, especially the sphenoid, mastoid, labyrinthine caries, necrosis of the petrous tip, through de-

nocturnal headache and possible papilledema, and Gradenigo's syndrome may occur as it progresses. The infection is through the tympanic roof or the antrum, usually caries. The operation is the removal of the focus and spinal drainage. In the posterior fossa, the route of the infection is usually through the labyrinth, with vertigo and vomiting. Symptoms more marked in this type than in the mid-fossa type. The treatment is the same as that for the mid-fossa type. The petrous apex type is a combination of one and two, the middle fossa and the posterior fossa.

Cerebral irritation is a heading under spinal fluid findings. There is evidence of localized meningitis, an increase in the cell count, an increase in pressure, increased globulin and albumin, and no organisms. There is a decrease of sugar, a decrease in bicarbonate, an increase in potassium and protein, and lactic acid. Cerebrospinal fluid is a dialysate or filtrate from capillaries, rather than a secretion from glandular structure (Weed-Fremont-Smith). Dilution or concentration of blood plasma causes corresponding osmotic change in cerebrospinal fluid. Intravenous injections of hyponic saline with spinal drainage tends to force the cells and bacteria out of the perineural and perivascular spaces into the cerebrospinal fluid system. The absence of organisms in the lumbar puncture does not rule out true meningitis. Spinal fluid has lysing and dissolving action on cells and bacteria themselves. They may be dissolved, and thus not appear in the spinal puncture. Eagleton believes an active infection may be present in the subarachnoid spaces, with sterile lumbar fluid and a low cell count; for instance, a cell count below 3,000, organisms present on the smear, but a sterile culture. This is local meningitis and the prognosis is good if the focus is removed.

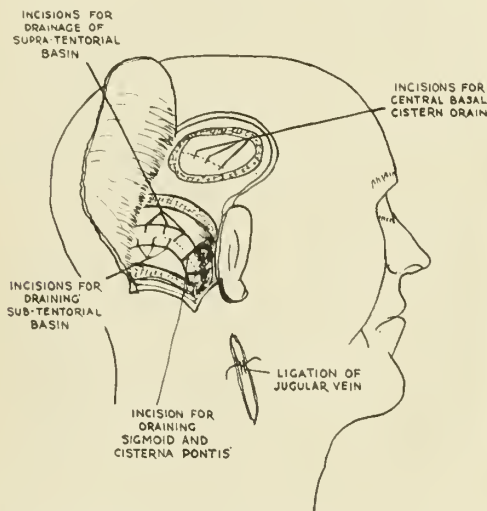


Diagram illustrating the proper sites for incisions in order to secure adequate drainage. (Kerrison.)

hiscences in the bone, especially in infants and in childhood, infection through the labyrinth, by way of the cochlea, account for one-third of the cases. There is a direct lead from the cochlea to the subarachnoid space. It may wall off for a short time at the prolongation of the cisterna pontis in the internal auditory canal. There is an exenteration of the labyrinth effective at such a time. The infection may be blood borne by thrombophlebitis, either of the large collecting veins or the small pial vessels, or it may show a direct blood stream infection. Again it may be secondary to a brain abscess, usually thrombotic or embolic, and this is uniformly fatal.

The clinical subdivisions are the middle fossa, the posterior fossa and the petrous apex. The first is an obscure onset with low-grade fever,

Meningitis from infection of the pial vessels has 100 per cent mortality. Subarachnoid space meningitis is curable surgically when confined to the basal cisterns. All patients with suppurative otitis media, and nocturnal headache are to be hospitalized, to be under careful observation, with blood tests, x-ray examinations, and perimeter fields. Early operation is advisable, not depending on spinal fluid culture. The steps are ligation of the common carotid, removal of all structures to the apex of the petrous pyramid, placement of needles in the cisterna magna and lumbar canal, replacement of fluid by Ringers' solution through a cannula in the cisterna pontis, blood transfusions and one irrigation only. It is not indicated when the pathway is blocked by exudate. The reports are 32 per cent recovery.



Neal, Applebaum and Jackson report sixteen recovering out of 623 cases by eradicating the primary focus and establishing adequate spinal drainage. Twenty-three cases at autopsy showed extensive basilar edema. Of the chemicals, gentian violet, acriflavine and optochin are of doubtful value and may be dangerous. Specific serums have been used, but the results are discouraging. Autogenous vaccines are too slow. Spontaneous recovery is possible. We continue to use specific serums in the hope that somebody may find something of value.

Neumann reports 59 cases with 22 recoveries. His operation is a complete mastoid exenteration, with complete exposure of the dura and lateral sinus above and below, the removal of the superior petrous ridge, not opening the dura, and repeated lumbar puncture. Cyclotropine is given intravenously.

Ersner and Myers use the intracarotid injection of acriflavine and colloidal iodine.

Occasional cases recover after various types of therapy. The majority continue to die in spite of any therapy. One must not conclude that the recovery was due to the treatment given. The recovery that follows extensive surgery is probably due to breaking off the thrombophlebotic vessels passing from the infected area through the dura to the meninges.

Williams reports 597 cases, 118 influenzal, 214 pneumococci, 205 streptococci. Sera is of little value in streptococci unless it is of scarlet origin.

Kolmer and Amano immunized rabbits against intracisternal injections of the pneumococcus type, I, II and III, by oral administration of vaccine once daily for a week prior, but this treatment is purely experimental.

#### SUMMARY

Careful observation of the patient and observation of minute clinical signs and symptoms are of more value than any laboratory procedure in the early diagnosis. Early spinal puncture is essential. Best results are obtained in the cases showing a positive smear and negative culture. No treatment is of much value in fulminating cases. Repeated spinal drainage, plus hypotonic saline is of value, until the drainage is blocked, and then the hypotonic solution adds to the cerebral edema. Subdural drainage is of value in selected cases. Intracarotid medication is worse than useless. Intraspinal medication is of doubtful value. Early operation, prior to walling off, on sinuses and mastoids, invites complications. Some cases recover in spite of, rather than as the result of, therapy.

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#### Discussion

Dr. Dean M. Lierle, Iowa City: I have enjoyed Dr. Downing's paper very much. It is so complete that I do not think it needs much discussion.

I would like to report the result of our own cases. We have been very much interested in meningitis during the last two years. Up until two years ago, we treated all patients by the conservative method, by periodic spinal puncture and supportive treatment. In this series of cases, over a period of ten years, three patients recovered. All three had positive spinal fluid cultures. These results may be accounted for on the basis that the focus of infection was treated fairly early, the general resistance was good, and the strain of bacteria was probably not particularly virulent.

During the last two years a number of patients have been treated in conjunction with the Department of Neurosurgery by drainage of the cisterna. The focus of infection, of course, was removed in every case and the patient received 5,000 to 10,000 c. c. of fluid daily. There were no recoveries. In our experience the conservative treatment gives the best results, but any treatment of diffuse suppurative leptomeningitis is unsatisfactory. At the present time we must rely upon early diagnosis and removal of the focus of infection.

Dr. William Pearson, Des Moines: About three weeks ago I saw a youngster eight or nine years of age, healthy and of good physique. I was asked to see the patient because of edema about the left eye; he complained of headache and had been running a temperature of 102 or 103 degrees. While there was a history of a preceding cold, on examination I found the nose open. This in itself suggested that the origin of the trouble was either in the antrum or the frontal sinus. When the ethmoids are involved we see the outer wall crowded against the septum, and it is very apparent that there is an inflammatory process with swelling outside of the middle turbinal.

I saw this child on two or three occasions at intervals of a day or so. The temperature subsided, the headache disappeared but the swelling and edema

persisted. The report to my office was that the child was getting along well and I did not see him again until day before yesterday when the mother telephoned saying that the eye still was edematous and that he was running a temperature of 103 degrees. Without calling, I asked them to send the child to the hospital where we would examine him and do whatever was necessary the next morning.

The x-ray showed an involvement of the antrum, and the frontal sinuses were fuzzy. I opened the antrum and washed out a large amount of pus. I also opened the anterior ethmoidal cell which was filled with granulated tissue and which I believe was the point of extension into the orbit. The frontal sinus was opened but no pus was found. Several drams of pus escaped from under the periosteum of the frontal bone when the incision was made to open the frontal sinus. The evening following operation the interne at the hospital called and told me that the temperature was 105 degrees. Yesterday morning, which was the morning following operation, Dr. Kirch informed me that the high temperature had continued, indicating that meningitis was developing.

It would seem that I operated just as a fulminating meningitis was developing; it is highly improbable that a temperature of 105 degrees could have developed just a few hours following the operation if the process had not been in the course of development. There was no accident at the time of operation and nothing in the operative procedure that would justify the advance of infection within the limited time following operation. It occurred to me that at this time while we are discussing meningitis the report of a case of fulminating meningitis would be in place.

Doctor Downing's paper has covered the subject of meningitis in a very comprehensive manner.

## THE PRESENT STATUS OF THE MANAGEMENT OF PETROSITIS\*

F. H. REULING, M.D., Waterloo

The term petrositis as used in current otologic literature is confusing in that it includes an inflammatory process or osteomyelitis of a diploic or sclerosed petrous apex, as well as the coalescing type of inflammation and subsequent empyema which occurs in a well pneumatized petrous apex. The clinical entity as presented by Kopetzky and Almour<sup>1</sup> in 1931 is the condition commonly spoken of as petrositis, and is the condition which has provoked so many papers in the last three or four years.

Wittmaach's theory of the mechanics of pneumatization of the temporal bone has been widely accepted by anatomists and the medical profession. According to this theory, the subepithelial tissue

which lines the tympanic cavity at birth, gradually penetrates and fills in the marrow-filled cavities of the temporal bone and eventually forms the large, well pneumatized, mastoid. This process may also be continued into the zygomatic, squamous, and occipital bones; and a chain of cells may extend into the petrous apex. Thus, there is a direct continuity of epithelium from the tympanic cavity into the petrous apex as well as into the mastoid proper. A bacterial invasion of the middle ear may extend along the epithelium or through the lymph spaces into any of the groups of cells that have been so pneumatized. This invasion produces, either simultaneously or independently, an inflammation of the affected areas which may result in coalescence and empyema.

Profant<sup>2</sup> and others have pointed out that a well pneumatized mastoid tip usually means some degree of pneumatization of the petrous apex, either complete or partial; while a diploic mastoid, representing as it does an interference with normal pneumatization, implies a diploic petrous apex.

The symptomatology of a petrous apex infection consists of:

1. Profuse drainage from the middle ear. When the petrositis occurs simultaneously with a coalescent mastoiditis the middle ear fails to dry in the usual period of time following the simple mastoidectomy. However, it is more common for the drainage from the petrous apex to appear some days or weeks following an operation on a pneumatic cell type of mastoid in which the middle ear and wound has healed, or is healing, satisfactorily. The discharge is profuse and persistent.

2. Low grade sepsis as evidenced by temperature from 99 to 102 degrees.

3. Trigeminal pain, located especially behind and around the eye and in the teeth on the affected side.

4. Abducens paralysis as evidenced by double vision and imperfect outward rotation of the eye on the affected side.

5. X-ray findings showing changes in the petrous apex.

All of these symptoms need not be present in petrositis, and in this respect it also parallels mastoiditis, in which we often have an absence of one or more of the classical symptoms. Kopetzky has given us this clinical entity which can and should be differentiated from Gradenigo's syndrome. However, I should like at this time to stress the point that from 1904, when Gradenigo first presented his triad, until 1931, when Kopetzky gave us the entity we now call petrositis, there must have been the same percentage of petrositis

\* Presented before the Eighty-fourth Annual Session, Section on Ophthalmology, Otology, and Rhinology, Iowa State Medical Society, Davenport, May 8, 9, 10, 1935.



that there is now, but we called it Gradenigo's syndrome. In 1910 Perkins<sup>3</sup> collected 94 cases of Gradenigo's syndrome with a mortality for the series of eleven, or about twelve per cent. It is possible, of course, that only eleven of those cases were petrositis, but, in any event, none of them had a surgical drainage of the petrous apex, since a simple or radical mastoidectomy was the only accepted procedure during that era. The mortality rate for that series is well below the rate published for surgical drainage of petrositis.

This brings us to the problem of determining the type of treatment we shall institute in a given case of petrositis. Kopetzky<sup>4</sup> says, "When a patient presents the symptoms outlined, the elements of differential diagnosis have all been checked, and there is positive roentgen evidence to substantiate the diagnosis, operation, and operation alone, is the indicated therapeutic agent in the cure of the patient and the eradication of the lesion." He states further, that, "In all the cases which I have seen and studied, I have not seen spontaneous recovery in one in which operation was not performed."

It would seem that these statements might be open to some question inasmuch as we all see cases of coalescing mastoiditis, with definite x-ray findings and profuse discharge, which do make a spontaneous recovery. Especially is this true if we accept Eagleton's statement made before the American College of Surgeons last fall, that: "Infections within a petrous apex have a much greater tendency to spontaneous cure, i.e., without the opening of the infected area, than has the associated mastoid suppuration, because in apical suppuration the infection is influenced by the presence of red bone marrow."

X-ray studies are of value in determining the need for surgical intervention in a case presenting the typical symptoms, but, like mastoid x-rays, the findings are not conclusive. It would seem desirable to have an x-ray of the petrous apex taken on every case presenting mastoiditis in a highly pneumatized mastoid. Then, if the symptoms of a petrositis appear later, we would have a key film with which to compare subsequent films. Coates, Ersner, and Myers<sup>5</sup> point out that in many instances the roentgenologist is unable to distinguish between petrositis, exudative petrositis, and congestion of the petrous portion of the temporal bone due to venous anomalies of the skull; and further, that petrositis, as revealed on roentgenographic examination does not necessarily indicate surgical intervention.

I shall not go into the technic of the various operations for drainage of the petrous apex. The

two most commonly used are the Kopetzky-Almour and the Eagleton unlocking operation. They are both fairly formidable procedures but either operation will save many lives. One of them should be undertaken when our judgment convinces us that the patient cannot recover without more adequate drainage. It should be noted that none of the operations is planned to eradicate all of the infected bone. The most that can be claimed for the surgical procedures is the production of counter drainage or the enlargement of the fistulous tract which is already draining the petrous apex. It should be noted that there is already some drainage present as evidenced by the cardinal symptom of profuse drainage from the middle ear.

Kopetzky describes a quiescent period during which the trigeminal pain may lessen or disappear; the paresis, if present, improve; and the discharge cease, only to be followed by the onset of generalized meningitis. This doubtless occurs, but the same cessation of symptoms could obviously be the beginning of a spontaneous cure, as has been reported by numerous writers. Hence it would seem reasonable to err on the side of conservatism, when we have made a definite diagnosis of petrositis, until the point is reached where the dangers of further delay appear greater than those associated with surgical drainage of the apex.

I wish to present two cases. The first, a boy twelve years of age, had a spontaneous rupture of the drum of his right ear on October 3, 1933. On October 17 he was first seen at our office complaining of pain in the right mastoid. There was tenderness over the mastoid, edema of the tip, sagging of the canal wall, and profuse middle ear drainage. An x-ray of the right mastoid showed marked decalcification, destruction of the trabeculae and much loss of detail. The left mastoid was negative. On October 18 the right mastoid was operated. It was highly pneumatized, cells extended well into the zygoma and all of the cells were completely destroyed. Culture showed short-chain streptococcus. While in the hospital he had an uneventful postoperative course. The middle ear was dry in seven days. He was dismissed on the tenth day, sent to his home in a neighboring town and told to report to his family doctor for dressings. On November 3 he was brought back with the history that for two days he had had severe intermittent pain in and behind the right eye and in the upper teeth on the right side, and that on the night before the right ear had started draining. His temperature was 100.4 degrees. Profuse, non-mucous drainage from the ear was noted. The mastoid was healed. An x-ray of the



mastoid showed that all cells had been removed and x-ray of the petrous showed cells present. Those on the right were blurred as compared to those in the left petrous. He was advised to go back to the hospital for a period of observation. This was refused and he was taken home. For the next three weeks my only connection with the case was telephone conversations with the family physician. The pain increased in severity, was worse at night; temperature ranged from 99 to 102 degrees. The discharge from the ear was very profuse and constant. On November 13 he complained of double vision, which gradually disappeared at the end of a week. On November 25 he was brought back to the office. The pain was less constant; the discharge from the ear very profuse; his temperature was 99 degrees; eye movements normal, and eye grounds negative. I saw him once a week for four weeks from then on. The pain had disappeared by December 9. The drainage from the middle ear gradually ceased and was dry on December 16; and the temperature normal. He was dismissed on December 23, eighty-three days after the mastoid operation. I have seen him several times since and his ear is normal, his hearing good, and he is in excellent health.

The second case I wish to report was handled by Dr. Bender. While I saw the child occasionally I am quoting from his notes.

The patient was three years of age. On April 2, 1934, this boy came to our office with a history of his left ear aching for seven days. Examinations showed the left drum markedly bulging, the mastoid tender, a temperature of 101 degrees and the lad in a generally toxic condition. The right ear was negative. The left drum was opened. Four days later there was much discharge from the ear, the mastoid tenderness was almost gone, and the boy was feeling fine. A few days later he showed still more improvement. On April 20, 1934, the lad returned with a temperature of 101 degrees, in a toxic condition, and with a subperiosteal abscess starting over the left mastoid. A mastoidectomy was performed that night, but no x-ray was taken because of the definite diagnosis. The operation showed all cells broken down, many granulations and much pus. A culture showed a short-chain streptococcus. The patient was making an uneventful and rapid recovery; temperature about normal, canal almost dry; and he was discharged on the fifth post-operative day. About May 1, ten days after the operation, the youngster became ill with a temperature of 100.5 degrees, headache on the left side, squinting of the left eye and profuse canal

drainage. The headache became gradually worse to the point of nausea, and he occasionally vomited. The eye was kept closed. Temperature continued daily. On May 26 an x-ray was taken and showed all cells of the mastoid proper well eradicated, but many pneumatic cells into the petrous apex were present. A definite diagnosis of petrositis was made. The parents refused operative treatment.

These symptoms continued more or less, with some lessening of the eye squint, until June 16, when the discharge was decreasing gradually and the boy was feeling better. At no time were there any meningeal symptoms or signs, or manifest deviation of the left eye. Granulations developed through the drum and were removed in July. On examination August 1, the boy seemed well except for a slight aural discharge which was mucoid in character; the headaches were gone, there was no more squinting of the left eye, and his appetite was good. He was last seen on September 25, about five months after the mastoidectomy. At that time the ear had been dry for one week. The patient was, and had been feeling generally well during the last month.

#### CONCLUSIONS

1. Petrositis is a true entity which should not be confused with Gradenigo's syndrome.
2. Petrositis can and does make a spontaneous recovery.
3. The decision as to when surgical drainage is indicated is difficult and requires good judgment rather than arbitrary rules.

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#### Discussion

**Dr. Harry H. Lamb, Davenport:** Dr. Reuling has favored us with an interesting and most timely paper. In preparing a discussion of this subject, I find myself markedly handicapped by a very limited experience. I have had but one known case of petrous suppuration and this cleared up following a simple mastoidectomy.

Since the presentation of the work of Kopetzky and Almour some four or five years ago we have all dreaded the onset of severe pain back of the eyes and later radiating into the upper and lower jaw. As Dr. Reuling has pointed out, other symptoms and signs are usually present, but in conversation with other otologists who have handled cases of petrositis, this is the most nearly pathognomonic symptom.

Given sufficient evidence to warrant a diagnosis of suppuration of the petrosal pyramid—what to do? If a mastoidectomy has not been done, a very complete simple mastoidectomy is definitely indicated. Myerson, Rubin and Gilbert in their anatomic studies of some two hundred temporal bones have found that the best developed and most frequently present channels leading to the apex were, first, the anterior surface cells above the cochlea (originating in the angle between the superior semicircular canal and the facial nerve) and second, the jugular bulb group (subcochlear and posterior cochlear). An especial effort should be made to eradicate these cells and possibly find a sinus leading into the apex. If a complete mastoidectomy has been done and the symptom complex still develops, the surgeon is most definitely "on the spot."

I agree entirely with Dr. Reuling that "Petrositis can and does make a spontaneous recovery." Shambaugh, Hagens and Shambaugh, Jr., state flatly: "In our experience *most* cases of petrositis recover spontaneously after simple mastoidectomy. Only in the protracted case with relatively severe symptoms is surgery of the apex indicated."

Methods of draining the apex of the pyramid as advanced by Kopetsky and Almour, Eagleton, Myerson, Rubin and Gilbert seem to me to be most formidable procedures. Unquestionably they are of great value and should be utilized as life saving measures. However, I am sure that most cases will benefit by conservatism and watchful waiting.

I should like Dr. Reuling to point out anatomic, pathologic, and clinical differences between suppuration of the petrous apex and the Gradenigo symptom complex.

May I compliment Dr. Reuling on his instructive paper and the illustrative value of his case reports.

Dr. Fred W. Bailey, Cedar Rapids: Dr. Reuling states that, "The term petrositis as used in current otologic literature is confusing in that it includes an inflammatory process or osteomyelitis of a diploic or sclerosed petrous apex, as well as the coalescing type of inflammation and subsequent empyema which occurs in a well pneumatized petrous apex." It seems to me that the term petrositis should not be more confusing than the term mastoiditis, iritis, appendicitis, choroiditis, etc. The essayist has given a very comprehensive summary of the present status of petrositis. Since this complication of mastoid inflammation and suppuration was brought to the notice of those interested in otology by Gradenigo in 1904, considerable attention has been given to the symptoms, diagnosis and treatment of this phase of middle ear disease. The essayist, in his paper, and Dr. Lamb, in his discussion, have covered the ground quite thoroughly. I will add a few thoughts which have come to me after several months of recent study of this subject.

There can be no question that petrositis was as prevalent fifty years ago as it is now. It is not a new disease. How much it really has to do with the mastoid problem, it seems to me, is yet to be determined. Enthusiasts who have given consider-

able attention to petrositis of late years, like those doing work in any other field, are likely to be overzealous in their conclusions. They have petrositis in mind and are prone to attribute untoward symptoms in many cases of middle ear disease and mastoiditis to petrositis. Kopetzky, Eagleton, Almour, etc., all remark about persistent free discharge of pus from the middle ear in their cases of petrositis and that these cases are cured by tapping the petrous pyramid. Have not all of us had cases of free discharge from the middle ear following mastoid operations which subsequently cleared without surgical interference? The answer is yes. Occasionally we have re-operated upon the mastoid, and found a few cells in the mastoid bone which we had not opened. Following this simple operative interference, the discharge from the middle ear promptly ceased. We never had the petrous pyramid in our minds and, of course, were nowhere near the petrous area in our operations.

In a personal interview with Dr. Joseph C. Beck, of Chicago, a short time ago, the doctor stated that he had never had a case, in all of his many mastoid operations, in which he felt that he had a definite case of petrositis. Knowing Dr. Beck as we all do, and appreciating his alertness to all things new, I think this is rather a sweeping statement and that one can draw definite conclusions from his remark. It seems as though Dr. Beck, of all otologists whom I know, would have noticed petrositis if this disease were at all common. He also remarked that the difficulty of approach, from the surgical standpoint, makes one think that probably the objective point is not always reached by those who are attempting to open the petrous pyramid.

That petrositis is a definite complication of middle ear disease and mastoiditis, there can be no doubt. This condition may also "jump," to use the words of Dr. Beck, from the sphenoid cells. In my own personal experience, I have encountered only two cases which I could attribute definitely to petrositis; one in a boy twelve years of age who developed the typical Kopetzky entity about two weeks after a simple mastoid operation. He recovered without surgical interference. The second case was in an adult forty-eight years of age, referred to me by his dentist who had removed a filling from an upper incisor tooth because of pain back of the patient's eye. The patient's temperature was normal and his sinuses all clear on transillumination; the drum head only slightly red. No medication was given and the patient was asked to return the following day. About 9:00 o'clock the same night the patient became unconscious and was taken to the hospital. A lumbar puncture revealed 30,000 cells in the spinal fluid. The temperature gradually rose to 103 degrees. A myringotomy of the right ear was performed; no discharge was present. The patient died the following day without regaining consciousness. Autopsy showed sphenoid inflammation and infection, with extension into a pneumatic petrous pyramid on the right side. This case illustrates the idea of Dr. Beck that petrositis can jump over from



the sphenoid cells. This patient, of course, died from meningitis.

The ultimate end of petrositis has not been reached by any means and we will undoubtedly hear much more on the subject.

**Dr. Cecil Jones, Des Moines:** I have had six cases of petrositis, two of which terminated fatally. I had one about eight years ago, before I knew anything about petrositis, and I had one within the last year. One had all the symptoms of acute suppurative meningitis, secondary to mastoiditis. No history could be obtained. This patient died. We removed the temporal bone, and there was an erosion through the roof as large as my little finger nail. Having operated on four patients who recovered and two which died, I do not feel I am as conservative as Dr. Reuling seems to be from his paper.

One thing I want to emphasize is that I do not believe Gradenigo's syndrome is characteristic of petrositis. Neither of the two cases I had was so characterized. The symptoms were low grade sepsis with severe pain in and behind the eye. The reason Dr. Reuling's two patients recovered was that there was a spontaneous fistula, and I think in the management of these cases, the first thing to do is to open up the mastoid wound, go in and search for a fistula, and if it is not amply large, enlarge it. Trautman's triangle is the first place to look for your fistula. The second place is behind and beneath the facial nerve. The fistula may be up near the peritubal cells and you cannot find it through the ordinary mastoid wound.

I wonder if I could diagrammatically sketch the procedure used in the four patients who recovered. The first incision is made around the temple, a large flap being raised. As the essayist mentioned, you have to be careful because the dura is usually more adherent than you normally find it, and even normally it is very adherent over the semicircular canal. Start elevating the dura forward from the superior semicircular canal, and go forward until you find the gasserian fossa. You should make a large flap, to have enough leeway to lift up the dura and its contents. In the four patients on whom I have operated, I have used a hook to break through the floor of the fossa into the apex. Pus will emerge. Put in a rubber dam drain. The only danger I can see is that there is a possibility of hitting the internal carotid artery when you go through with a hook. I have been using a hook, but if I do another one, I will use a chisel. These patients all recovered and the pus drained out along the drain between the dura and the roof of the apex into the mastoid wound.

**Dr. T. R. Gittins, Sioux City:** My discussion of this very timely and well prepared paper concerns experiences with three patients who had abscess formation in the petrous portion of the temporal bone secondary to acute middle ear and mastoid infection. Two of the three patients developed periodic pain in and behind the eye three weeks after a simple mastoid operation; the other patient developed acute labyrinth symptoms after a discharging ear of seven or eight weeks' standing. This patient had pain in

the temporal region and eye each night for weeks before the acute labyrinth symptoms developed. In one of the three patients there was paralysis of the external rectus on the side of the affected ear. In one of the patients there was periodic stiff neck accompanying the pain in and around the eye. The stiffness of the neck cleared up between the periodic attacks. In all three there was evidence of low grade sepsis.

In one patient the ear canal was dry but there was a discharge from the mastoid wound three weeks after the operation; in one patient there was a discharge from the ear and mastoid wound three weeks after the original operation; in the third case there was a discharge in the ear canal of over seven weeks' standing but the mastoid operation had not been performed.

The x-ray was of definite diagnostic value in one of the three patients.

(At this time slides were shown of basal and anteroposterior films taken just before operation to drain the petrous abscess, and of films taken three weeks later.)

A large area of destruction of the petrous tip region on the affected side is very evident in the x-ray picture. The roentgenologist reported that the area suggested the destruction of a fibrosarcoma. The slide of the anteroposterior position showed definite destruction of the whole inner half of the petrous ridge on the affected side. A film taken three weeks after the operation showed a very marked progress in the healing of the process in the petrous tip region. Basal pictures were taken in the other two cases but were of very little help, undoubtedly because of poor technic dependent upon lack of experience.

The old mastoid wound was explored in two instances and a complete mastoid operation was done in the third, preliminary to drainage of the petrous area.

In each of the three patients a sinus was found leading from the depth of the mastoid cavity inward to a large cavity in the petrous tip. In two of the patients the sinus was posterior to the horizontal canal and slightly above it; in the other patient the sinus was directly above the anterior vertical canal. A probe passed into the sinus allowed pus to escape from the petrous abscess in each instance.

The sinus was enlarged slightly in each patient and a small rubber drain passed into the abscess cavity. These drains remained in place five or six days.

The two children who had had previous simple mastoidectomies made uneventful recoveries and were well in a little over three weeks. The external rectus paralysis in the one cleared up in less than a week after operation; periodic eye pains in both instances disappeared after operation. In these two children there is normal hearing.

The adult patient who had a discharging ear but had not had a mastoidectomy, came in with acute labyrinthine symptoms. He had an active vertigo and vomiting, rotary nystagmus to the opposite side,



and prostration. His hearing was good on the affected side at the time of operation. For several months after the operation he had some disturbance of equilibrium on sudden movements but is now completely recovered. He had a twenty per cent reduction in hearing for low and high notes at the time of the last examination.

There is still a definite tendency in some sections of the country to insist that a radical mastoidectomy is the operation of choice when we are dealing with an abscess in the petrous portion of the temporal bone. Undoubtedly there are times when the radical procedure is definitely indicated. I hope, however, that the experiences with these three patients lend a little weight at least to the argument favoring conservative handling of the middle ear whenever a sinus can be found leading to the petrous abscess. To endanger life in an effort to preserve the hearing is naturally poor judgment. My limited experience suggests that probably both life and the hearing can be preserved quite often by a complete mastoidectomy rather than a radical one. It is my belief that the number of cases of petrositis can be materially reduced if complete mastoidectomy is routinely done instead of the unfortunately named simple mastoidectomy. In doing complete mastoid surgery, we undoubtedly prevent the development of petrositis in some instances; we unknowingly establish drainage from unsuspected infections at other times; and we have an opportunity to seek for a sinus in every instance.

**Dr. Reuling (closing):** Dr. Lamb asked me to mention the difference between Gradenigo's syndrome and petrositis. First, from an anatomic standpoint, petrositis, as brought out by Kopetzky, can only occur in a pneumatized petrous apex, while Gradenigo's syndrome may occur in a diploic, or pneumatized petrous apex. Second, from a pathologic standpoint petrositis is a coalescing osteitis; while in Gradenigo's syndrome we may have merely venous congestion of the petrous, an osteomyelitis, or a coalescing osteitis. Third, from the clinical angle Gradenigo's syndrome may occur without the profuse aural drainage or x-ray findings that occur in petrositis. In other words petrositis may have the symptoms of Gradenigo's triad but in addition has x-ray findings and profuse drainage, originating in the coalescing osteitis of the petrous apex.

I was interested in Dr. Jones' statement. I do not want to create the impression that all of these patients can get well without operation, because certainly some of them cannot, but I do want to point out that all of them have a fistulous tract or we would not have the cardinal symptoms of profuse discharge from the middle ear. They all have some manner of drainage. In any operation you only increase the drainage or establish counter drainage.

Dr. Gittins' discussion brings out the difficulty of obtaining satisfactory x-ray pictures. I was glad to hear that he had had the same experience that I had with spontaneous cures.

## THE PRESENT STATUS OF THE MANAGEMENT OF MYOPIA\*

JOSEPH E. DVORAK, M.D., Sioux City

At present there are numerous methods of treating myopia. All authors do not agree on one particular method. The greater number, however, do agree on full correction of the refractive error which includes the correction of hyperphoria. For the ordinary person under forty-five years of age, two per cent homatropine is a suitable cycloplegic. In the more resistant case scopolamine, one-tenth of one per cent to one-fifth of one per cent is suggested. In persons forty-five years of age or over, with a history of ocular discomfort, a cycloplegic is used.

Myopes usually have an exophoria for near and distance vision. Lenses do not modify this exophoria. The convergence near point is usually remote and lenses do not affect this. Occasionally base in prism, especially for near vision, and convergence exercises are helpful. An addition of a -25 D sphere is made to a full cycloplegic correction in all cases that do not exceed -150 D in its strongest meridian. The addition for presbyopia is usually stronger than in hyperopia because of the habit of holding print closer to the eyes. Base in prism for near vision when exophoria is excessive often gives considerable comfort. Hook-on base in prisms are often tried out first, especially on nervous individuals. All cases of myopia that simulate the progressive type are examined annually. In definite non-progressive cases, examinations are advised when eye strain symptoms are experienced.

The normal eye performs a large amount of near work with very little discomfort. A slightly myopic eye or one of higher myopia performs it with greater ease, without becoming progressively worse. It is possible that too unfavorable prognosis has been given these cases, and interfered with the adult's occupation and the child's education. It has been the impression that many of these patients, with proper refractive correction could perform close work with very little discomfort and at the same time, not become progressively worse. The myopic patient should always wear a full correction for near and distant vision. It is only in this manner that the myopic eye approaches emmetropia. The child particularly, should wear a full correction at all times. The myopic child because of his inability to see at a distance develops a reading habit which makes it difficult to restrict his close work. This reading

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habit deprives the child of fresh air and exercise which is essential to even a healthy child. There are instances of individuals with higher myopia who are engaged in close work for a long period of time where a weaker lens for near vision gives greater comfort. There is no particular objection to such a lens being prescribed.

There are, however, a great number of school children who cannot get along on this treatment. In England, myopic classes have been established and good results have been derived from them. There are many instances of children with moderately good corrected vision, who have been deviated from a normal educational course into these classes by over-cautious examiners. There is no question that in many instances, pathologic myopia continues to progress and these children must be diverted from their normal educational course and treated as definitely diseased. Each case should be treated on its own merits. The myopic classes have a definite part in the curriculum of all schools.

In England pupils who cannot see better than 20/50, are admitted to these classes. No child is admitted for nystagmus, keratitis, opacities or cataracts unless the existing condition is associated with myopia. There are usually twenty-one children in a class, the average age is nine years. Each child sits before an individual desk equipped with a blackboard, one yard square. This board is adjusted at eye level and at arms length. The child prints on this board. Script is not permitted. All instruction is given orally. No textbooks are used. The older students print the assignments on paper sheets fifty-four by twenty inches. These are folded and bound in book form and used later for teaching other children. No effort is made to educate a child above the level into which he was born. With the additional handicap of myopia they seldom reach that level. Physical drill and organized play are a part of treatment. The boys attend manual training classes, and the girls attend cooking school.

In the United States, similar organizations are called Sight-Saving Classes. There are 457 such classes in the United States. There are 21 in Minnesota and only one in Iowa. The following children are admitted to these classes:

1. Those with correction who have 20/70 or less vision.
2. Elementary school children with -4 D or more of myopia.
3. Inactive cases of interstitial keratitis, phlyctenular keratoconjunctivitis, optic neuritis, trachoma, etc.

In these classes children are placed in groups

with their fellows who have the same handicap, for study periods only. They recite with the normal children. They are taught to maintain self-confidence and to develop a cooperative spirit. These children who come in contact with children of normal vision are stimulated in their effort to learn. They do not single themselves out for self-sympathy and consequently do not develop the psychic disturbance which later leads to an inferior complex. They learn to recognize their visual limitation, and consequently conserve their visual reserve.

Efforts to stop the progress of myopia are made as follows:

1. Proper correction of refractive error.
2. Short reading periods.
3. Proper type and light.
4. Active physical exercise under guidance.
5. Adaptability in manual arts in which sight is not an important factor.

Since progressive myopia very likely has a constitutional cause, periodic examinations are made, especially of the internal glandular system, calcium, thyroid and vitamin deficiency.

In 1927 Meyer Weiner published his first paper on the use of adrenalin in the treatment of progressive myopia. He believes that the question of metabolism must be considered as one of the causes of the progressive type. It is generally agreed that exercise and diet as much as any one thing will affect favorably the progress of myopia. He believes that exercise increases the output of adrenalin. He proves his point by quoting Warte and McCardock, who have shown that when the adrenal glands are stimulated in cats by exercise, adrenalin is freed in sufficient quantity to dilate the pupils. He also quotes Martin and Armlstad who found metabolism increased two and one-half times normal in their experiments on various tissues, when placed in Ringer's solution to which adrenalin has been added. He believes that diet has a definite influence on adrenalin secretion. He quotes McCarreson who has shown that guinea-pigs fed on a diet of oats and autoclaved milk had only one-fourth of the normal amount of adrenalin per gram of gland tissue. He, therefore, believes that diet and exercise influences the secretion of adrenalin and that local application of adrenalin increases tissue metabolism. He adds that it is quite possible that the cramped position often assumed in reading and the close application of the eyes has a deleterious effect on the secretion of adrenalin.

As early as 1900 he noticed the beneficial local effects of adrenalin on the softening or stretching scleral tissue. He was so influenced by this theory



that in 1923 he treated a series of 27 cases by local instillation of 1-1000 solution of adrenalin three times a day in eyes of patients affected with progressive myopia. A rational wholesome diet was also advised. His conclusions were that none of the cases showed as much progress for the worse as before the adrenalin treatment.

In 1930 he reported 99 cases which had been followed for one or more years under adrenalin treatment. There were no controls to these series. He concluded that there was a certain type of progressive myopia which is favorably influenced by exercise and local instillation of adrenalin, while another definitely shows some other influencing factor which has not yet come to light.

Jackson of Denver has found during the last thirty-five years that a full correction constantly worn, seems, in a large proportion of cases, to check the progress of myopia. Blaauw of Buffalo says that he has tried adrenalin treatment and has not seen any improvement in his cases. Gradle of Chicago observed the treatment in thirty cases, using other cases as a control, and he seems to think that there is some merit in this treatment. Green of St. Louis feels that whatever results are obtained may come from the effects of adrenalin on intra-ocular tension. Libersohn treated four adults with high myopia in which he got no results. He also treated twenty-two children, five of whom were not benefited while some remained stationary and a few improved. Crisp of Denver does not feel that adrenalin should be given all the credit since refraction, exercise, fresh air, and certain curtailment of near work are influencing factors.

Luddle of St. Paul treated numerous cases by disassociating the eyes for near vision by using a monocular cycloplegic. He believes that progression of myopia results from tension of extra-ocular muscles during prolonged convergence in near work. He quotes Jackson as follows: "Excessive convergence in the great majority of cases starts the myopia and keeps it progressive." Donder's observation that watchmakers using magnifying lenses never develop myopia, supports the convergence theory. He states that atropine should be instilled once a day for a prolonged period in addition to other corrective measures. This method prevents binocular vision for near work. It might be supposed that instillation of atropine in both eyes would further insure complete rest. However, the disadvantages are that there is produced an annoying glare, and near work is completely abolished. If a patient is sufficiently myopic he may be able to read by removing his glasses and thus again become subject

to the harmful effects of convergence. An eye under monocular cycloplegia is subject to less glare. The attempt to read without glasses does not stimulate binocular vision. The patient is obliged to use only one eye for close work with or without glasses. Luddle also believes that we can check progressive myopia and at the same time permit the patient to carry on his vocation. He cites as proof of his belief a case of myopia which he followed for eight years. This patient failed to progress under treatment but progressed in the intervals between treatments. In other cases he was able to reduce the refraction by one-half diopter after treatment. In instances where he was unable to reduce the myopia he was able to improve the vision. He concludes by saying that monocular cycloplegia is not to be regarded as a substitute for, but as an adjunct to a full correction, proper ocular hygiene and good bodily health. The author fails to explain the cases of monocular myopia where the two eyes are so different that binocular vision is impossible. Convergence is suspended but myopia tends to progress.

Groves and Nugent of Chicago feel that base in prisms are of definite value. They believe that a large percentage of myopia has its start in early childhood and is due to a weakened scleral structure, and that uncorrected errors of refraction cause excessive accommodation, and consequently excessive convergence. They feel that in young patients they can remove or lessen the correction worn and stop the progression of myopia by using base in prisms. After treating a sufficient number of patients they draw the following conclusions:

1. In over fifty per cent of myopia cases the correction can be reduced and better vision obtained with greater comfort to the patient.
2. A patient wearing a correction that has a visual acuity of 20/20 or better can have the same vision with less correction.
3. Cases that do not have 20/20 vision can obtain better vision by the use of base in prisms but cannot accept a reduced correction.
4. Records show that all forms of progressive myopia can be stopped by the use of base in prisms.

Several years ago Fukala advised the removal of the crystalline lens for treatment of high myopia; Donders branded this form of treatment as criminal. However, since surgical procedure has become less dangerous this treatment has definite merit. Following this treatment patients become emmetropic, or nearly so, and visual acuity is improved.

O'Connor reports good results from removing



lens in highly myopic patients. He believes that dissection of the lens has given him the best results. The punctures should be subconjunctival. The pupil must be kept widely dilated until all lens substance is absorbed. Patients too old for dissection should have the lens extracted by a preliminary iridectomy.

Elchnigs results following the removal of cataracts in 136 highly myopic patients is of great interest. He proves that surgery on highly myopic eyes is not inconsistent with good results. He blames the bad results on the unusual prominence of the eyeball and the change in the character of the vitreous. He concurred in the general belief that myopic eyes respond poorly to post-operative trauma, and occasionally result in iridocyclitis, glaucoma and detached retina. He also believes that simple extraction is superior to the combined method, and that the intracapsular method is associated with fewer postoperative complications than the extracapsular method. He concludes that if all the safety procedures are used, the final results from the lens extraction from the highly myopic eye are no different than a similar operation on an emmetropic or hyperopic eye.

SUMMARY

1. A full correction of the refractive error is still our most efficient means of combating the progress of myopia.
2. The myope classes in England and the Sight Saving Classes in this country are definite factors in the prevention of higher myopia.
3. Adrenalin treatment and base in prism and monocular cycloplegia by themselves are of questionable value.
4. Lens extraction should be tried when indicated, as a last resort.
5. Good general health, exercise, fresh air, restricted near work, and good reading habits are necessary factors in all forms of treatment.
6. The following figures constitute a summary of the results obtained by comparing 82 cases of myopia treated by full correction of refractive error, and 58 cases of myopia taken from the literature treated with adrenalin and correction of refractive error. In both series a certain amount of hygienic measure was observed.

GROUP I				
Age of cases, 1 to 8 years inclusive				
	Refraction		Adrenalin	
No. of cases	8		20	
Total increase of myopia	18.25	D.	46.75	D.
Increase of myopia per patient	2.28	D.	2.33	D.
Average years of observation	9.6	yrs.	8.3	yrs.
Increase in diopters per year	0.24	D.	0.28	D.
All patients showed increase of myopia.				

GROUP II				
Age of cases, 1 to 15 years inclusive				
	Refraction		Adrenalin	
No. of cases	37		30	
Total increase of myopia	35.15	D.	41.25	D.
Increase of myopia per patient	0.95	D.	1.37	D.
Average years of observation	6.64	yrs.	5.1	yrs.
Increase in diopters per year	0.143	D.	0.249	D.
No. of patients showing less	3		0	
Patients showing no change	2		1	
No. cases monocular myopia	3		0	

GROUP III				
Age of cases, 16 to 25 years inclusive				
	Refraction		Adrenalin	
No. of cases	37		8	
Total increase of myopia	15.875	D.	2.00	D.
Increase of myopia per patient	0.429	D.	0.25	D.
Average years of observation	8.5	yrs.	4	yrs.
Increase in diopters per year	0.0504	D.	0.0625	D.
No. of patients showing less	4		0	
Patients showing no change	7		0	

GROUP IV				
	Refraction		Adrenalin	
Total No. of cases	82		58	
Average increase of myopia in all groups	1.21	D.	1.31	D.
Minimum and maximum years of observation	4.17	yrs.	3.16	yrs.
Average years of observation	8.2	yrs.	5.8	yrs.

Discussion

Dr. W. F. Boiler, Iowa City: Following is a transcript from the work of F. C. Donders of Holland, published in 1864. Consequently the work it represents must of necessity be a great deal older than that, representing perhaps a lapse of seventy-five years from the time this was written until the present date, and I am asking you particularly to note how closely it compares with the present day ideas of myopia:

"The task of the oculist in myopia resolves itself into the following:

1. To prevent the further development of the myopia, and the occurrence of secondary disturbances.
2. By means of suitable glasses to render the use of the myopic eye easier and safer.
3. To remove the asthenopia muscularis by the use of glasses or by tenotomy.
4. To combat the secondary disturbances of the myopia.

"I. In the exposition already given lies, I think, the proof, that where predisposition exists, continued accommodation for near objects promotes the development of staphyloma posticum. Where this predisposition occurs we must be aware of it even from youth. We have remarked that accommodation, as such, is not in this case in operation, for in it only the form of the crystalline lens is changed, and in myopia the latter has undergone no change. In a mediate way, therefore, through accessory circumstances, it must be, that accommodation for near objects promotes staphyloma posticum. Of such circumstances two especially come under observation; strong convergence and a stooping position. As to the first, in order to see acutely, myopes must bring the object within the region of accommodation, and where myopia is somewhat advanced, binocular vision under these circumstances requires a strong convergence. Children and young myopes, with great power of accommodation, are even accustomed,

particularly in bad light, to bring the objects much nearer to the eyes than the degree of the myopia, properly speaking, requires. This strong convergence increases the tension of the eyeball by pressure of the muscles, perhaps also by pressure against the surrounding tissues, and increased pressure promotes the staphylomatous distention. Especially when commencing insufficiency of the mm. recti interni renders the convergence difficult, the latter is combined with great tension of the eyeball. Now strong convergence may be avoided in various ways. In the first place we cause the patient to look much at a distance. But we cannot absolutely forbid looking at near objects, and we therefore give spectacles which bring the farthest point, *r*, to a sufficient distance; for example, to from 16 to 18 inches. At the same time the patient is to be strongly recommended not to look at a shorter distance than 16 or 14 inches, to which young people have the greatest tendency; a ruler of this length may serve as a measure to parents and masters as well as to the myope himself. Moreover, it is desirable that often (for example, every half-hour) work should be discontinued for a couple of minutes. In very high degrees of myopia only one eye is usually employed in vision, and thus convergence is excluded. This appears to me to be often a desirable condition; in strong myopia, binocular vision loses its value, and the tension which would be required for it cannot be otherwise than injurious. Now, in such cases, for reading no spectacles are given; in the first place, because the acuteness of vision has usually somewhat decreased, and the diminution of concave glasses is now troublesome; in the second place, because the retrocession of *r* injurious efforts at convergence and at binocular vision might be excited. In any case the spectacles should be so weak as to avoid these results.

"A stooping position was also mentioned as a promoting cause of myopia. This position of necessity leads to accumulation of blood in the eye; under the influence of gravitation, the afflux of blood takes place, in fact, under higher pressure, and until the efflux, too, more pressure remains in the veins; and with the augmented pressure of blood the tension of the fluids in the eye increases. The symptoms of irritation connected with hyperaemia, which in young people usually accompany progressive myopia are, I think, for the most part also to be ascribed to the cause just mentioned. Even in non-myopes an unpleasant feeling of pressure in the eyes speedily occurs when the face is held horizontally. Now the increased tension of the fluids certainly promotes, as such, the development of staphyloma. But in yet another way the accumulation of blood is still more injurious, namely, by promoting, perhaps even by exciting, the inflammatory affections under whose influence the staphyloma is so rapidly developed. In the hygiene of myopia, therefore, the very first point is to guard against working in a stooping position.

"II. The prescribing of spectacles for myopes is a matter of great importance. While emmetropic

and hypermetropic eyes do not readily experience any injury from the use of unsuitable glasses, this may in myopes, particularly on account of the morbidly distended condition of the eyeball, and of the tendency to get worse, be very dangerous.

"There exists in general a dread of the use of too strong glasses. It is laid down as a rule: rather too weak, or no glasses, than too strong. In this rule the necessary distinction is lost sight of. Too strong glasses make hypermetropic eyes myopic, and myopic eyes hypermetropic. The rule, therefore, cannot be equally true for both. In fact, it is in general much less injurious to produce a certain degree of myopia than of hypermetropia, in which last particularly much is required of the accommodative power. The rule, therefore, would be more correctly stated thus: in hypermetropia we must beware of giving too weak, in myopia of giving too strong, glasses; a rule the second part of which we should especially insist upon. But even by this little is gained. Not using glasses, or using too weak glasses, may also be injurious to myopes. All the circumstances must therefore be studied, which can exercise any influence on the choice of glasses. It is difficult to reduce these to definite rules. But to attempt to do so is our task.

"IV. Therapeutic treatment. For myopia, as such, there is no therapeutic treatment. Myopia consists in an anomaly of form capable of no improvement, and of which only hygienic measures must, if possible, prevent the further development. But it is not unfrequently complicated with symptoms of irritation and inflammation, and with other pathological deviations of different kinds, which partly proceed from it, partly promote its further development; and with respect to these it is the duty of the therapist, to the best of his ability, to interfere. It is not part of the plan of this work to enter into detailed discussions respecting therapeutic questions. While it treats of anomalies of refraction, it must make known the dioptric remedies which counteract them; but it cannot treat in extenso of complications, which neither necessarily belong to the essence of these anomalies, nor are characteristic of them—much less still of their treatment. Consequently, only brief indications are to be expected here, respecting treatment, in connection with some prognostic hints.

"In the foreground appear symptoms of irritation at the period of puberty, characterised by capillary hyperaemia of the nerve-surface (and of the retina), and by fatigue and pain in the eyes, especially on exertion in the evening. Under such circumstances we should be particularly strict with respect to the hygienic directions, which are in themselves in many cases sufficient. It is also of great importance to keep the feet warm. Often, too, a douche on the closed eyelids is agreeable. If the symptoms do not give way, we may, with avoidance of a stimulating diet, combine some derivation on the intestinal canal, and we may in addition recommend the application, to the frontal and temporal regions, of a stimulating embrocation, composed, if there be any coexist-



ing external irritation of the eyes, rather of non-volatile ingredients. At the same time, especially when it appears that the myopia is rapidly progressive, all tension must be avoided. So far as work is permitted, this must be accomplished in slight degrees of myopia without spectacles, and in higher degrees it must be brought accurately to twelve inches. If fatigue or pain should occur, work must in either case be suspended; and if the use of spectacles appears more rapidly to cause fatigue, we should not lay stress upon their adoption, but take care only that the patient maintains a proper position in whatever work he still performs. If it be suspected that the symptoms of irritation have excited spasm of accommodation, as often occurs in high degrees of myopia in youth, we should employ sulphate of atropia, partly to test the truth of the supposition, partly to remove the spasm and to prevent it returning on each effort to see. We may then even continue this application for some days, whereby the myope becomes accustomed to look at the greatest distance of distinct vision; unnecessary convergence is thus prevented, and from this plan no injury is to be apprehended, provided we cause the patient to avoid strong light, or to moderate it by means of grey glasses. In case of a relapse of the symptoms of irritation, with spasm of accommodation, the application of Heurteloup's artificial leeches to the temples, followed by twenty-four hours' stay in the dark, with gradual transition to light, has been found very useful. In spite of all efforts, however, these symptoms of irritation in some constantly recur. If, moreover, the myopia is rapidly progressive, the patient's state is serious enough to make it necessary to warn him against choosing an occupation in which close work would be constantly required; above all, such myopes should not be office clerks. But such cases are rare; with few exceptions the inconveniences disappear before the twentieth year.

"At a later period of life, the acuteness of vision sometimes diminishes in high degrees of myopia in a few months in a manner to cause considerable uneasiness. In these cases the hyperaemia at the borders of the atrophy often leads us to suspect the existence of progressive myopia, while to this state of things other signs of irritation are usually added. If, in such instances, no organic changes are ophthalmoscopically to be observed in the region of the yellow spot, we almost always obtain, within a few weeks, a considerable improvement of the acuteness of vision, by the weekly abstraction of blood after Heurteloup's method, by keeping the patient in a moderate light, and by making him avoid tension of the eyes, combining this plan, according to circumstances, with the use of the douche and of a stimulating embrocation, with derivation by the intestinal canal and stimulating pediluvia. Even when there are perceptible morbid changes in the yellow spot we need not despair, so long as subjectively a defined scotoma does not remove direct vision. In persons of sixty years and upwards, with myopia of  $1/5$  and even of  $1/4$ , I have, by following

the above directions, seen the acuteness of vision rise from  $1/30$  or  $1/20$ , to  $1/4$  or  $1/3$ , and thus become quite sufficient for writing and reading. It is quite a different thing when a circumscribed scotoma, ophthalmoscopically perceptible in the yellow spot, is also perceptible to the patient. This indicates a profound disturbance in the seat of direct vision. Blindness is in general not particularly threatened thereby; but improvement of direct vision is not to be expected, and if both eyes are equally affected, the patient must prepare himself for the impossibility of reading, writing or performing minute work. In cases of accessory choroiditis disseminata the same directions are to be observed. In such we must expect repeated improvement and aggravation of the affection. After many years, however, the result usually becomes so unfavorable, that ordinary work can no longer be performed. Motes are at the same time often present in the vitreous humour; of the cause of these I have already treated. Especially under these circumstances it is usual to prescribe a long course of small doses of preparations of iodine or mercury. I, too, have repeatedly done this, but I would not venture absolutely to assert that I have seen favorable results from it. Many patients give themselves more trouble about these motes than they deserve. If no definite morbid changes threaten the yellow spot, we may give a comparatively favorable prognosis; we should advise that the attention should be as much as possible withdrawn from them, and the attempt to do this should be seconded by causing the patient to wear nearly neutralizing glasses, made so as at the same time to moderate the light, and thus to make the shadows of the motes appear less defined.

"Complaints of persistent photopsia are yet louder, but are fortunately rarer. It occurs chiefly in diffuse atrophy, and indicates a state of irritation of the optic nerve. I have, in addition to the above described treatment, tried numerous remedies against it, among others, narcotics, but, so far as I recollect, always in vain. The complaints were, in some cases, especially in nervous women, lamentable, and it has often surprised me, that, with such signs of continual irritation, the acuteness of vision was, in the course even of some years, but slightly diminished. Against the most melancholy complications of myopia, effusion of blood, and detachment of the retina, treatment is almost powerless. In cases of effusion of blood in the vitreous humour, we may expect absorption, leaving behind it some opaque motes and membranes. The metamorphosis, under which the absorption takes place, is a spontaneous process, which treatment cannot promote, and the physician has therefore to confine himself to hygienic rules, and to such derivative or constitutional treatment as may appear to be adapted to each individual case. Pressure, by means of a bandage applied at intervals, might probably favor absorption, but when the bandage is taken off the tension of the fluids is diminished, and, as appears on ophthalmoscopic investigation, the vessels are distended, whereby the danger of fresh effusion must



necessarily be increased. After repeated relapses, the vitreous humour remains opaque, and the fundus oculi is sometimes wholly invisible. Occasionally, after repeated effusion of blood in the vitreous humour, local detachment of the retina occurs, in some cases certainly in consequence of blood accumulated between the retina and the choroidea. Partial absorption is here also to be expected, but the detached portion of the retina never again resumes its functions. The prognosis in detachment of the retina by a serous fluid, such as often occurs in high degrees of myopia, is somewhat less unfavorable. Irritation of the choroidea and diminished connection by displacement of the retina over the disproportionately extending atrophy of the choroidea, must tend to promote this. In very rare cases absorption may occur, which many endeavor to promote by means of all kinds of remedies (mercurials, preparations of iodine, derivants, sudorifics), very problematical in their action; but in general improvement of the sight depends upon the fluid sinking to beneath the seat of direct vision, or upon a diminished morbid condition of the parts of the retina bordering upon the detachment. Rupture of the retina is so far advantageous, as the danger of further detachment appears thereby to be lessened. This fact it was which chiefly suggested the idea of dividing the detached part by incision. Sichel had already at an earlier period advised the discharge externally of the effused fluid, by puncturing the sclerotic in the seat of the detachment. This is attended with no difficulty whatever; but it does not appear that any advantage is obtained by it. The incision of the detached part was performed chiefly by Adolf Weber and by von Graefe, with a two-edged needle, carried from the inside through the vitreous humour. In this manner a communication was established between the fluid accumulated behind the retina and the vitreous humour, with which it mingled; and the difference of pressure, which plays a part in the origin and further development of the affection, was thus removed. No injurious effect resulted from the operation; in some cases, at least at first, some improvement was observed; but experience has as yet by no means decided, whether, and in what cases, permanent benefit is to be obtained by this method; hitherto it has been employed almost exclusively in old and nearly hopeless cases. It has, indeed, appeared, that in staphyloma posticum the danger of extension of incipient detachment, and consequently of increasing destruction of sight, is greatest. This therefore justifies the practitioner in more boldly attacking precisely these cases in the commencement. In all cases of recent detachment of the retina, in addition to the ordinary hygiene of the eye, jolting, vibration, etc. (in carriages and on railways) as well as violent exertion in fatiguing work, are to be strictly forbidden."

**Dr. E. P. Weih, Clinton:** In myopia, prevention is better than cure. We have seen that in predisposed individuals, an over-use of accommodation, finally resulting in spasm, is one of the early factors of the disease. This should be met by a careful cor-

rection of the refraction and, if necessary, a temporary relief from school duties. Long series of cases have proved that complete correction of the entire error of refraction in myopia prevents its progression in the majority of cases. We know that the minority of myopes have the pernicious type. There are some advantages about under-correction as well as exact correction in certain cases. A definite rule only embarrasses the experienced physician. Each case must be treated on its own indications. No rule will apply to all. The general hygienic treatment is no less important than the provision of glasses. The general health should be built up. Near work should be restricted, school hours should be short, and there should be frequent rest periods during the study hour. Dr. Dvorak states, "All cases that simulate the progressive type are examined annually." I do not believe this is often enough; at least every three months would be better, to determine the progress of disease and its treatment.

**Dr. James E. Reeder, Sioux City:** In the management of our myopic cases there has been very little change in our treatment than that which we have followed for two or three generations, namely, full correction, proper hygienic surroundings, limiting their periods of close work, outside activity, and periodic examinations. In all probability the biochemist will solve the problem of myopia and a very simple measure will be adopted in either preventing or arresting its progress.

## OPERATIVE TREATMENT OF FEMALE STERILITY\*†

(TUBAL IMPLANTATION)

ERWIN VON GRAFF, M.D., Des Moines

In sterile women with underdevelopment of the womb, and in cases in which the clinical history is definitely suggestive of some functional glandular disorder, endocrine treatment of some sort may eventually be successful. The number of these cases, however, as Novak recently emphasized, is comparatively small. By far the most frequent causes of sterility in women are gonorrheal, puerperal or metastatic infections, which eventually may result in the obstruction of the fallopian tubes. Although this has been known for many years, it is only since Rubin<sup>1</sup> devised a method of testing the patency of the fallopian tubes that we have been able to obtain reliable figures as to the frequency of this cause of sterility and the condition of the tubes in each individual case. Therefore, the Rubin test must be considered the most important contribution to advancement in diagnosis and treatment of female sterility. According to my personal experience<sup>2</sup>

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† From the Department of Obstetrics and Gynecology, State University of Iowa.

the tubes have been found closed in 56 per cent of all sterile women, even if neither the clinical history nor the bimanual examination revealed a previous infection. In cases in which the past history or the examination had already given evidence of a pelvic infection, the tubes were found to be closed in 70 per cent.

The conservative treatments formerly so popular, and applied in the hope of re-establishing the patency of the fallopian tubes, have proved futile. This is because we generally see the patient complaining of sterility at a time when the causative infection has long since clinically healed, and the anatomic changes have become definite. Therefore, with few exceptions, the finding of tubal obstruction is final, and the only possibility of re-opening the path for both spermatozoa and ovum cell is by surgery. Although this fact was recognized many years before Rubin, the number of operations performed for this purpose has remained comparatively small because the goal, conception and the delivery of a living child, was reached in only a very few cases. The ever-increasing interest in the treatment of sterility in women prompts the report of a case in which the operation, first performed by Watkins in 1897,<sup>41</sup> has proved successful.

G. H., twenty-six years of age, married for four years without having become pregnant, was admitted to the department of obstetrics and gynecology in Iowa City on October 11, 1933. No clues of a previous venereal infection of the patient or her husband could be found. The examination of the husband by the family physician had shown abundant well-shaped and movable spermatozoa. The pelvic examination of the patient had revealed normal conditions. The Rubin test, made several months prior to the admission for operation, had given evidence of an occlusion of both fallopian tubes in the interstitial part. The patient had been informed that she had no chance to become pregnant unless a communication between ovary and uterine cavity was established; that this could only be man-

aged by means of an operation; and that the final result was rather uncertain. Further inquiry of the patient revealed as a possible cause of obstruction a metastatic infection in the course of a parotitis she had had in early childhood. On October 14, 1933, a laparotomy was performed. Both fallopian tubes were found to be normal in their ampullar and isthmic parts, but obstructed in their interstitial part. The right fallopian tube was cut near the uterine insertion and implanted into the fundus uteri which had been split open by a sagittal incision following the technic of implanting a ureter into the bladder. The convalescence was uneventful, and the patient was discharged on the twelfth day. The patient had only two menstruations following the operation, and missed the third because she had become pregnant. The course of the pregnancy was normal, and resulted in the delivery of an eight pound baby girl three weeks before term on October 19, 1934, one year and five days after the operation had been performed.

Unfortunately, tubal implantation can be considered only in cases in which the abdominal ostium is open, and the tubal canal patent through most of the isthmic portion of the tube. In cases in which the tubes are found closed at their ampullar ends, one of the following procedures may be followed:

1. Salpingotomy or salpingostomy, i. e., opening of the tube by a lateral incision (Skutsch<sup>8</sup>), or amputation (Martin<sup>9</sup>), and fixing the ovary close to the new stoma by sutures (Gersuny), or resection of the obliterated part of the tube followed by end to end anastomosis (Christian and Sanderson<sup>12</sup> and Child<sup>17</sup>).

2. Implantation of the whole ovary with intact pedicle into the uterine cavity (Petit<sup>30</sup>).

3. Extirpation of the tube and grafting of ovarian tissue on the stump or the uterine horn, after having made sure that the way into the uterine cavity is free (Morris<sup>35</sup>).

The following chart shows the frequency and results of the various sterility operations reported in the literature of the past fifty years:

Type of Operation	Number of Operations	Became Pregnant	Course of Pregnancy		Success
1. Salpingostomy and tubal plastic	568	60 (10.5%)	Full term	16—(26.6%)	16—(2.6%)
			Result unknown	6	
			Abortion	33	
			Ectopic	5	(63.3%)
2. Graft of ovarian tissue on uterine horn or tubal stump	66	14 (21.2%)	Full term	5	5—(7.5%)
			Result unknown	2	
			Abortion	6	
			Ectopic	1	
3. Ovary transplanted into uterine cavity with intact pedicle	41	3 (7.5%)	Full term	1	1—(2.4%)
			Abortion	2	
4. Implantation of tube into uterus	70	26 (37%)	Full term	23	23—(33%)
			Premature (still birth)	1	
			Abortion	1	
			Ectopic	1	



This chart should be viewed not merely as statistics giving an approximate picture of the results obtained from the various operative procedures. It demonstrates, which is much more important, that any kind of operation may occasionally be a success, even if it seems unsound or contradictory to our present concept of the place of impregnation, the mechanism of transportation, and nidation of the fertilized ovum. As an illustration, the two patients of Morris may be cited: one of them became pregnant following the extirpation of both adnexa and the graft of a part of one ovary on the tubal stump; the other, who had both ovaries removed, became pregnant and was delivered of a healthy child following the implantation of a piece of ovarian tissue taken from another woman. Many cases are known in which Nature herself has played fantastic tricks in this line. Women have had extra-uterine, interstitial, or even normal intra-uterine pregnancies after both tubes had been removed for ectopic pregnancy or other reasons. Such startling and inexplicable occurrences, however, are extremely rare and no statistics will ever show in how many hundreds of thousands of cases with the same conditions and opportunities given pregnancy did not occur. The only thing to which we can cling in the operative treatment of sterility is the clinical experience.

Although the author is aware of the unreliability of statistics on the whole, the chart would indicate definitely that salpingostomy and tubal plastic may be followed by pregnancy in about ten per cent of the cases, but that the pregnancy is likely to reach term in only one-third of them, abortion or ectopic pregnancy being twice as frequent. The implantation of the ovary into the uterine cavity with intact pedicle has been fully successful only once—in the very first case in which this method was used. In two cases the pregnancy was ended by abortions. Somewhat more promising is the grafting of ovarian tissue, although here, too, the number of abortions equal the number of deliveries at term. Compared with these three groups, the results of the tubal implantation seem to be brilliant, 40 per cent of the women having become pregnant, and nearly 37 per cent of all the operated ones having been delivered of a living child.

Although a study of the literature and my personal experiences would indicate very definitely that the results in the first three groups can be improved to a certain extent by proper selection of cases and improvement of operative technic, the outlook will always be more promising if one

is able to proceed with the implantation of the tubes into the uterus.

It must be kept in mind, however, that the cases in which the implantation of the tube is feasible represent a rather small, select group, and that the results in these particular cases should not make us too enthusiastic about the possibilities of operative treatment of sterility.

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Editor's Note—A complete bibliography will be included in the reprints which may be secured from the author.

## THE ETIOLOGY AND PATHOLOGY OF NON-TUBERCULOUS PULMONARY DISEASES

(EXCLUDING PNEUMONIA)

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In discussing the etiology and pathology of pulmonary diseases I shall limit myself to a few of the more common conditions found in the lungs. I will not attempt to give any review of the literature nor append any bibliography.

First of all, we shall consider the effects of upper respiratory tract infection upon the lungs and bronchi. I do not believe that we consider serious enough the ultimate effect upon the pulmonary system of the common respiratory tract affections. In fact, many times we fail even to connect a history of upper respiratory tract disease with the pathology now present. We should always remember that if we expect to do anything for the patient, early recognition of the possible etiologic relationship of upper respiratory tract infection to the pulmonary pathology is necessary. It is too late after advanced pulmonary lesions have developed to hope for a permanent cure or even to offer the patient much relief. Therefore, it is important to suspect upper respiratory pathology as being directly the cause of the patient's

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pulmonary trouble and remove such foci as are present, and do it early before advanced changes have developed in the lungs. Pulmonary disease may result from paranasal sinusitis, enlarged and infected tonsils and adenoids, deviated septa, spurs, nasal polyps and malformed turbinates. I believe that sinus disease is more serious than tonsil infections, especially in children. The infection reaches the lungs by direct extension through the trachea and bronchi, either by aspiration or by an extension of the infection along the mucous membranes of the trachea and bronchi. Aspiration frequently occurs from sinus and nasal discharge. Lipiodol instilled into the nose and sinuses may frequently be found in the lungs and usually at the base, especially in children. Also we cannot overlook the effects of general systemic infection upon the lungs; such as, rheumatic fever, typhoid and undulant fever. Rheumatic lungs are now recognized. In fact, when we think of bronchiectasis, bronchial asthma, atelectasis, emphysema, pulmonary fibrosis, pulmonary congestion and edema, we must consider the possible relationship of upper respiratory tract infection and general systemic disease.

The pathology varies a great deal. Peribronchial and perivascular infiltrations with resulting fibrosis are usually found. Frequently a chronic pneumonitis may exist with much mucopurulent discharge present. Bronchiectasis may occur. The lymph glands are usually enlarged with considerable fibrosis of the roots of the lungs.

One of the most common affections of the lungs is bronchiectasis. Any individual who has suffered from one of the various inflammatory affections of the lungs or bronchi will usually show some degree, at least, of bronchial dilation. I believe that we are beginning to recognize this condition earlier when something can be done.

Dilation of the bronchi is practically always a secondary affection and can be traced to some preceding disease of the bronchi, lungs or pleura. This condition is chronic and its evolution gradual. It may result from acute or chronic bronchitis, narrowing of the lumen of the bronchi; such as, foreign bodies, tumors, strictures, pressure on the bronchi from without, chronic disease, as tuberculosis, syphilis, pleurisy, pleural effusion, fibrosis of the lungs and acute infections of the upper respiratory tract. Pneumonia is often a common cause.

Early in the disease the process is more limited, while later it becomes more extensive and both lungs may be involved. We have the cylindrical and sacculated types. In the former the dilation is uniform. The bronchi tend to increase progres-

sively in size toward their terminal extremities, thus giving rise to the glove-finger appearance. In the latter the tubes may become dilated at a single point, forming a pseudo-cavity. Numerous sacculations may be found in a single bronchus. The cylindrical type of dilation is usually found in the larger and medium-sized tubes. While the sacculated type may occur in the large tubes, it is most commonly encountered in the terminal bronchi. All types of dilation may be seen in one lung. Usually the surrounding lung tissue is condensed by pressure, infiltrated with lymphocytes, and areas may show marked emphysema.

More recently roentgenologists are recognizing congenital bronchial dilation. A short time ago such a case was pointed out in the x-ray department by our roentgenologists, and the infant shortly came to postmortem from some acute intercurrent infection. Autopsy showed many dilated bronchi in the lower lobes of both lungs, but being more marked in the lower lobe of the right lung. Here we have part of the pathology already present and infection is all that is necessary. Invasion usually follows some acute upper respiratory infection. This congenital state should be kept in mind.

Fibrosis of the lung is of great interest because of its varied etiology. Properly speaking, it is not a disease. It is a result of some previous infection. The etiology of this condition embraces practically every disease to which the lung is subject. Any long-standing infection of the lung or bronchi may result in a diffuse fibrosis. Dust is a common cause. Miners and industrial workers who are confined in dusty quarters during their working hours usually develop some degree of fibrosis. In this condition we recognize a local and a general form. Due to its varied etiology, the pathology varies markedly, but in all cases we find that there is marked thickening of the tissue about the bronchi and blood vessels. The septa become thickened and I have seen lungs that were almost a mass of fibrous tissue interspersed with multiple bronchiectatic cavities. Pleural thickening is almost a universal finding, especially in the unilateral cases. As fibrosis increases, the lungs become smaller and as a result the bony framework of the chest retracts to meet the size of the lungs. Hence the frequent associated chest deformities.

Atelectasis is another condition frequently found in patients suffering from pulmonary and respiratory difficulties. By atelectasis is understood the return of lung tissue, once expanded, to a retracted airless state. Acquired atelectasis, to which I shall limit my discussion, may arise as the result

of interference with the respiratory function within the lung itself and by external mechanical pressure. Interference with respiratory function may be brought about by obstruction in the upper air passages due to enlarged tonsils, adenoids or laryngeal stenosis. In children, especially where laryngeal stenosis results from acute infection, one must never let them labor long against such obstruction. If they do, fatal atelectasis usually results. I have often noted massive collapse at post-mortem of one or both lungs in children suffering from laryngeal obstruction from acute infection. Acute infections with secretions in the bronchi as found in bronchitis, bronchopneumonia, whooping cough, attack of asthma, etc., may be a cause.

I cannot pass without giving the surgical patient some consideration. Following anesthesia, especially on patients having surgery on the upper abdomen with some paralysis of the diaphragm, we may frequently see a chain of events leading to atelectasis. Any patient, whether he has had an anesthetic or not, who has been active and is suddenly placed on his back in bed, may develop atelectasis. The cause is more or less evident. Physiologists have taught us that in the reclining position the thoracic cavity tends to become narrowed. The diaphragm is elevated due to the loss of the visceral weight, and the weight of the chest wall pulls the ribs closer together; this in turn compresses the lungs. Also the muscles of respiration are at a greater disadvantage and may become weakened and, as a result, the respiratory excursion is lessened. This, with a possible plugging of some of the smaller bronchi with secretions, may lead up to marginal and even massive atelectasis.

We must not forget that external pressure may play a part. This pressure may be brought about as a result of pleural effusion, pneumothorax, aneurysms, tumors, cardiac hypertrophy, pericardial effusion, thickening and contraction of the pleura and by spinal deformities. Atelectasis may involve one or both lungs. It may be limited to small areas or to the whole lung or any portion thereof. It is usually located in that part of the lung where the expanding power of the chest is least. Hence atelectasis is most commonly found at the base and along the free margins of the lungs. I have noted at autopsy that the middle lobe of the right lung is frequently involved. The pathology is easily recognized at the postmortem table. The involved area is sharply defined, shrunken, depressed below the surface and of a dark violet tint.

In contrast to atelectasis, we have emphysema which term, as usually employed, has reference to

the chronic and abnormal inflation and dilation of the air cells. This change of the lung is rarely primary in character, but secondary to changes in the bronchi or upper respiratory tract. The condition may be brought about by any affection which causes a forcible and more or less continuous overdistention of the pulmonary tissue. The expiratory theory is more generally accepted now. It is explained in a simple way. If, for instance, a localized emphysema involving one small bronchial tree and the associated air sacs develops, the primary difficulty is in the bronchus. This may, and usually does, consist of a narrowing of the lumen from whatever cause. In such a case the forcible nature of the inspiratory act draws air into the sacs while the passive nature of the expiratory act may prevent an equal amount of air becoming expired. This chain of events results in the air sac becoming more and more distended with air with each succeeding expiration. Of course, one must not forget the hereditary element as an underlying factor, especially in the senile type. Here poor elastic tissue is handed down by inheritance. Even a lack of elastic tissue may be noted.

The influence of occupation plays a part. Individuals who do heavy manual labor must hold their breaths while lifting for short or long periods of time, and also the players of wind instruments may overdistend the lungs. While considering all these points, we must not overlook the fact that some inflammatory change is usually at the base of the disease. Asthma with its resultant obstruction of the bronchi plays an important part. Dust particles with the resulting chronic bronchitis may be a direct cause. Miner's asthma is a good example.

Extensive adhesions and tuberculosis must be kept in mind. We must consider chronic bronchitis as the most frequent and most important exciting factor.

The morbid anatomy is easily pictured. While both lungs are involved more or less uniformly, the majority of cases show marked evidence of inflation of the apices, the anterior borders and the inner surface near the root of the lungs. On opening the chest at autopsy, the lungs are voluminous and overfill the chest. They do not collapse, are pale and dry, and very light and feathery. Scattered over the pleural surfaces may be seen small vesicles the size of a pinhead and in some cases the size of a large pea. Rupture of these vesicles may result in pneumothorax. Microscopically the walls of the alveoli and vesicles are thin and atrophic. Due to this distention, the capillary vessels are elongated, narrowed and



often entirely obliterated. As a result of this chronic change, the contour of the chest is changed and increased in size. A dyspnea characterized by difficulty in expelling air from the lung develops. The capillaries become more obstructed, and hypertrophy of the heart, first the right and later the left, results; and finally cardiac failure may develop in the far advanced cases.

Lung abscess may result from any upper respiratory infection or from septicemia, infected pulmonary emboli and vegetative endocarditis, and surgery of the nose and throat. Tonsillectomy as a cause is referred to in the literature. However, I have never seen such an abscess. Some authors think that aspiration of infected material is the means, while others feel that it is due to infected emboli from the region of the tonsils. Occasionally surgery of the abdomen in infected cases may result in lung abscess. Mastoid disease, thrombosis of the lateral sinus and the internal jugular vein may play an etiologic rôle. Pneumonia is a frequent cause.

The abscess may be either single or double. The lower lobe is more often involved. Upper lobe abscess may occur. I recently autopsied a case of pulmonary abscess of the upper left lobe. The abscess ruptured through the apex at the base of the neck and followed along the course of the internal jugular vein and finally pointed high up in the neck near the left tonsil. Finally the jugular vein was eroded, and the child died from hemorrhage.

Tumors of the lungs are not as rare as formerly supposed. Malignant tumors may be primary or secondary, the latter being by far more common. They may occur at any age but up to near middle life sarcoma is more likely to be found than carcinoma; while after middle life the reverse is more likely to be true. Pulmonary tumors of the lungs are more common in the male than the female. Metastatic tumors are more frequently encountered in women than in men. Benign tumors are more rare than malignant. Carcinoma of the bronchi and lungs proper may be found. Sarcomas and endotheliomas of lung pleura may be encountered. The growths may be single or multiple. The growths may be located in the hilus of one or both lungs or may be located any place in the lung tissue. The two sides are usually involved at about equal frequency. The lymph glands are usually involved fairly early.

The pathology is no different than malignancy elsewhere. If bronchi are involved, atelectasis may develop. Massive consolidation may result from the cutting off of a large bronchus. Pleural exudate may frequently be found. Careful ex-

amination of this fluid may clinch the diagnosis. It has been my experience that the cytology is fairly specific. Actual mitotic malignant cells may be found. Wherever I find a fluid that shows a few polynuclears and eosinophiles and many large multinuclear cells, I feel almost certain that a malignancy exists.

I will merely mention pulmonary gangrene and congenital and hydatid cysts, since they are the most rare of pulmonary affections. I have seen but one congenital cyst of the lung and I have seen no hydatid cysts in this section of the country. Also fungus infections can only be mentioned. I believe they are more common than reported cases would indicate. We should keep in mind such infections as, actinomycosis, blastomycosis, streptothrix and other more rare forms of mold infections. These infections usually follow long-standing infections of the lungs and other debilitating diseases as well as senility.

#### X-RAY FINDINGS IN NON-TUBERCULOUS LUNG DISEASES\*

(Excluding Pneumonia)

HARRY W. DAHL, M.D., Des Moines

There has unquestionably been a change in medical opinion regarding the value of the roentgenologic examination in diseases of the lungs, and it affords today probably the most valuable means of study available. The clinician as well as the roentgenologist must realize that the prospect for an accurate diagnosis varies with different diseases; we are prone to agree with Ude in his classification of chest diseases and the degree of accuracy of diagnosis by x-ray, as follows:

1. Demonstrated roentgenologically with high degree of accuracy:
  - Tuberculosis
  - Pulmonary abscess
  - Massive atelectasis
  - Purulent bronchiolitis
  - Pneumonia
  - Bronchopneumonia
  - Bronchiectasis with iodized oil
  - Metastatic malignancy
  - Non-opaque foreign body in bronchi
2. Moderate degree of accuracy:
  - Chronic lung fibrosis
  - Pulmonary congestion
  - Bronchiectasis without oil
  - Emphysema
  - Pneumoconiosis
  - Pulmonary infarction

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Chronic bronchitis  
Primary malignancy

3. With difficulty are:

Mycotic infections  
Acute bronchitis  
Syphilis  
Fusospirochetosis

It would doubtless be worthwhile if we were to enter into a general discussion of the various changes produced by chronic lung diseases; we would then realize why Ude presents such a large group of diseases in which the x-ray is of moderate or little help. However, in this discussion, we will attempt a categorical presentation of the facts we have actually learned about these diseases.

*Bronchiectasis.* This condition is most commonly found in children, who have been predisposed by attacks of bronchopneumonia or whooping cough. It involves principally the lower lobes, and is rarely found in the upper lobes. It is said to be diagnosed in 60 per cent of the cases from the flat plate alone, in which case there will be seen an increase in the width of the trunks running to the base or in a particular area. Further investigation is pursued by means of an iodized oil injection, and this procedure is absolutely necessary for obtaining accurate information as to the nature, location, and extent of the bronchiectatic dilations. The larger bronchial branches near the hilum are involved first, after which the infection extends into the bronchioles, producing a honey-combed appearance of the lobe. The bronchial dilations may be spherical, saccular, or cylindrical. In rare cases in which the large cavity closely resembles pulmonary abscess, the oil injections are of value because oil readily enters the former, seldom the latter.

*Pulmonary abscess.* By pulmonary abscess we mean an acute destruction of lung tissue originating within the lung itself as a result of an invasion by pyogenic micro-organisms. If it occurs following surgery on the upper respiratory tract, results are caused by an aspiration, and we find at the early stage a consolidation in the hilum with radiations into the periphery. Progress of the lesion is slow toward the periphery, differentiating from a typical case of pneumonia. The shadow usually assumes a smooth border, in the lower lobe most often, is always surrounded by solid lung tissue, and there is usually no communication with the bronchus.

*Atelectasis.* The following three types or forms of atelectasis are recognized:

1. Congenital: Presents on the x-ray film a homogeneous consolidation that cannot be differ-

entiated from any other consolidation from the film alone.

2. From bronchostenosis: Can only arise from a total obstruction of the bronchus, as in a foreign body, and presents an irregular, blotchy consolidation; greatest value of x-ray lies in obtaining films at end of inspiration and end of expiration and noting position of heart and diaphragm shadows.

3. Massive idiopathic: Seen most commonly following surgical procedures, and usually those on the abdomen; the type of anesthetic has no bearing in the case. The lobe loses its air content and collapses; the film will show the chest wall depressed on the involved side, the heart and mediastinum drawn to the affected side, the diaphragm high; the density of the collapsed lobe is due to the engorgement of the blood and lymph vessels. The condition closely resembles a pneumonia and is often called a postoperative pneumonia, but with a proper prescription the lung clears within a day or two, in contradistinction to a lobar pneumonia which goes on to run a typical course.

*Pulmonary malignancy.* Here we deal with two types, the primary and the metastatic.

1. Metastatic: Fairly easily recognized by the x-ray film, appearing as fairly dense shadows, of various sizes, rounded or annular, scattered throughout the lung fields, usually in the lower lobe. Invasion is by way of the blood stream. The carcinoma is more irregular in outline and less uniform in density than the sarcoma.

2. Primary: Carcinoma of the bronchus must be suspected whenever the bronchial wall appears thickened and infiltrated; x-ray film shows infiltration, increased density, and pleural thickening, but these are not characteristic or pathognomonic, and place us in a position to suggest bronchoscopic examination. Carcinoma of the lung tissue itself presents no characteristic x-ray sign; appears in various locations, has various sizes, shapes, and densities, area may be large or small. Resembles most closely an acute infectious process, in fact is often a part of it. The mediastinal structures are usually displaced to the side of the lesion in malignancy, and not in acute infections. There are two common manifestations of primary carcinoma of the lung: a lobe or entire lung may be involved in the pneumonic process, or the disease is simply limited to the hilum, with a dense opacity around the root of the lung, and collapse and consolidation in the periphery.

*Pulmonary syphilis:* Apparently relatively infrequent occurrence; very difficult of diagnosis by the x-ray film, usually only possible by exclu-



sion of other chronic diseases. Being blood-borne, its lesions are perivascular. The probable lung lesion is the gumma; it has a strong tendency to heal, forming disappearing centers of caseous material in great radiating scars, with absence of calcification, at times causing strictures, deformity, or obstruction. The greatest reliance must be placed upon a history of stubborn, progressive lung lesion, with sputum negative for tuberculosis or mycoses, positive serologic tests.

*Bronchomycoses:* This forms a serious group of lung conditions, and is of but recent interest and study. Many names are applied, depending upon the causative organism, such as actinomycosis, blastomycosis, coccidiosis, and moniliasis. These affections are comparatively rare as far as being primary in the lung. Great dependence is based on the bacteriologic examination. The x-ray findings are not uniform. Kirklin states that there is only one sign, which when present, can help materially to establish a diagnosis, and that is involvement of the ribs and sternum, shown by areas of destruction with or without the reaction of osteomyelitis. A differential diagnosis between tuberculosis or an abscess seems impossible otherwise. Watkins in a recent article states that a small sanitarium in Arizona has diagnosed twelve cases of moniliasis in the past seven years in patients coming to them with a diagnosis of tuberculosis. It is a real problem for the clinician and bacteriologist.

*Fusospirochetal infections:* So-called "pulmonary spirochetosis." Here again we have a fairly common condition, a distinct clinical entity, recognized mainly through the efforts of the bacteriologist. The x-ray pathology is: slight initial increase in density along the bronchovascular trunks of the lungs, followed by rapid development of a hilar infiltration and further increase about the truncal shadows. This in turn is succeeded by a patchy parenchymal infiltration of exudative type tending to become confluent and presenting the appearance of a local pneumonia consolidation. In other words, the progression means: bronchitis, peribronchitis, bronchopneumonia and lobar pneumonia. Thus if we were to classify pulmonary spirochetosis as to the pathology concerned we would have: bronchitis (ulceration limited to mucosa); bronchiectasis (ulceration of bronchial wall); pneumonitis (parenchymal infiltration); abscess; and finally gangrene. Sputum examinations are essential.

*Pneumoconiosis:* Represents a serious occupational hazard, involving principally the stone cutter and the coal miner. The two principal forms are silica and anthracotic. These represent two distinct pathologic processes. When

silica enters the alveolus the resulting reaction closely resembles chronic bacterial inflammation; the dust is first removed as a foreign body by the phagocytes and carried to the lymph follicles. These silica particles are partly dissolved in the alkaline tissue fluids and the resulting solution has much the same effect as a bacterial toxin. This toxin is a fibroblastic stimulant leading to a progressive fibrosis which continues as long as the irritant remains. This change in silicotic type is due to a progressive fibrosis in lung reticulum rather than to mechanical injury of the dust itself. The familiar mottling is caused by fibrotic nodules formed about invisible dust accumulations in the lymph follicles; the x-ray film shows little to distinguish it from tuberculosis. In the anthracotic form the dust particles are not soluble and therefore not toxic, the densities observed being due entirely to mechanical accumulation of coal dust.

Pancoast and Pendergrass have classically described pneumoconiosis as appearing in three stages:

1. Hilar shadows accentuated, more dense and extensive, with accentuation of peribronchial markings well into the periphery; appearance is symmetrical at first, later becomes irregular, x-ray not characteristic.

2. Mottling of lungs due to small fibrotic nodules, pinhead to pea in size, usually beginning in right lung near the hilum. The accentuation in hilar shadow disappears. The x-ray is similar to that of miliary tuberculosis. This infiltration from linear markings to infill formation is explained by the clogging of lymph channels with dust cells, stagnation of the stream, and super-vention of fibrosis.

3. Fibrosis extends and isolated infiltrations enlarge and coalesce to form nodules and patches of necrosis. There is a further advance of fibrosis to involve the interstitial tissue about the bronchi, with a return of the peribronchial markings and hilar shadows increased.

It is evident that progress must be made in the roentgenologic examination of lung diseases. It will be made only with the help of the clinician, the surgeon, the bronchoscopist, and the bacteriologist.

#### THERAPY IN NON-TUBERCULOUS PULMONARY DISEASES\*

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The treatment of non-tuberculous conditions of the chest is an unsettled phase of medicine, and there is very little specific in treatment. Prevention is by far the most important part of treat-

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ment (if it can be included in treatment), and in non-tuberculous chest disease, it most assuredly can be, because these conditions are secondary in the great majority of cases; for example, upper respiratory infections, measles, whooping-cough and other infections. Other non-tuberculous conditions of the chest, are those secondary to the acute infections, such as pneumonia, influenza and acute rheumatic fever.

The purpose of this paper will be merely to call attention in most instances to forms of treatment and not to detail; to awaken interest and bring attention to these conditions with the idea of prevention. There is a wide undeveloped field ahead in the treatment of thoracic disease, and we do not yet have the final word.

It is necessary to have a knowledge of the pathologic condition, in order to discuss and institute treatment. We arrive at a diagnosis with the aid of a careful history, and the importance of a complete accurate history cannot be overemphasized; we have our physical findings to help us in diagnosis, and here we believe our keener sense of perception, touch and hearing suffer because we rely more on roentgenologic study. However, the x-ray helps immensely in diagnosis and treatment; in treatment, because it aids us to visualize and localize our field for attack, and to measure results in the process of treatment. We have as an aid in treatment the diagnostic phase or aid of the laboratory, and an actual visualization of the field in many cases with the aid of the bronchoscope.

In the treatment of chest disease, we have been limited in the past. We have been able to go just so far; but as medicine in general progresses and pushes out into newer fields, just so we find our road in thoracic disease branching out here and there. Some of these branching roads are paths that may be and are widening out into real tried paths and roads; some of these paths are not so smooth and some turn out to be blind alleys, and a method of treatment is discontinued after a time as futile. Some of these paths that are being used more, and promise an opening into useful fields, are those representative of surgery. Up to the present our efforts in surgery have not been hugely rewarded, but they continue. Who can say but that thoracic surgery some day, if not already, will be as rational a procedure and as accepted, comparatively, as abdominal surgery? We believe it will always remain a special work for those especially trained. In tuberculosis, where surgical procedure or interference is making headway, a comparative viewpoint may be taken in the procurement of results. For in-

stance, a patient who has spent several years under routine management for the healing of a given lesion such as a large upper cavity, is offered surgical intervention; there is a great deal to be gained in the given case, but nothing relatively to lose. Perhaps pneumothoraces have been tried, or phrenectomy, to compress cavitation. There is no need literally to shelve this patient, or to keep him for months or years attempting to accomplish the impossible, when such a procedure as thoracoplasty is available. However, we did not intend to discuss the surgical aspect of thoracic disease, but to call your attention to the fact that it is a help to rehabilitate the otherwise incurable individual.

Before we let our patient reach that stage, if we can help it, we should watch and guard against conditions which may result in complete disability. Prevention is the stitch in time. Watchfulness following whooping-cough, measles, tonsillitis, sinusitis or any of the upper respiratory diseases that may develop into some of chronic bronchitis or a fibrosis, is surely worthwhile. Most of us in a general practice are too busy to follow through on our cases. We are generally satisfied to watch the patient through the acute primary stage and are likely to forget the possible aftermath, partly as we said by being too busy, partly because the patient objects to a growing expense, or not realizing the possible course or trend of the complications, uses a soothing cough syrup; and partly because we are not aware of a secondary condition until it is actually present with more or less pronounced symptoms.

Treatment is determined by the etiology and results of the changes produced, or the pathologic condition that is present; for instance, whether it is an upper respiratory infection that is responsible for the bronchiectatic condition in a given case, whether it is a foreign body, a mucons plug or enlarged gland that is responsible for the atelectasis. It is not always an easy matter to differentiate between the different forms of chest disease, to differentiate between tuberculosis, bronchiectasis, foreign bodies, neoplasms, atelectasis, or fibrosis. We are considering the non-suppurative conditions first, but not attempting to follow a classification very closely.

Prevention is important in diseases of the chest. It may be that allergy is the sole etiologic factor in a certain percentage of cases, but we believe that infection is the sole etiologic factor in far the greater number. According to Manges, infection of the accessory sinuses is present in a definite majority of asthmatic individuals, especially in children, and in 85 per cent of



asthmatics, x-ray reveals lung changes. Considering the rôle of pollens, emanations, food toxins, and bacterial toxins as exciting agents, he asks what has sensitized the membranes to these allergens, and thinks he has found the answer in infection, which lessens the resistance of the membranes and increases the permeability to foreign proteins. We do not consider etiology primarily, but we do have to consider etiology in regard to treatment. Notwithstanding, we will do much in prevention by clearing up foci of infection, by including that in the mouth, by building the patient up in those cases where he is having repeated attacks of sinusitis or repeated colds. Children especially should be watched following repeated or prolonged coughs or colds, after any upper respiratory infection, after whooping cough, measles, scarlet fever, and diphtheria. One investigator states that sinusitis and bronchiectasis are a friendly and dangerous pair. If then, we have repeated colds, a chronic sinusitis, any form of an upper respiratory infection including tonsillitis or postnasal obstruction, our problem is to rid the patient of this trouble before further complications take place. Prevention of sinus or ear infection, in the first place by removal of diseased tonsils or obstructing adenoids, is to be considered in the individual case. Building up the patient with good food, fresh air and sunshine is obvious, with cod-liver oil included. We may have a continuation of trouble, an involvement of sinus or ear by our zealous over-treatment, by the indiscriminate use of nasal drops and spread of infection by nasal spraying. Prevention of bronchiectasis alone is a worthwhile effort following measles and whooping cough in children; the injection of whole blood intramuscularly in measles seems to be of definite value; yet the value of vaccines has to be proved as yet. Prevention and treatment of whooping cough by vaccine is well worthwhile. These two conditions, if watched, will omit a definite source of bronchiectasis. Bronchiectasis is a follow-up disease.

Now then, with bronchiectasis, atelectasis or fibrosis established, what are we going to do? Each case is a problem unto itself. In advanced fibrosis we cannot do much; but in general, it may be said that we have the background and backbone of treatment for all diseases of the lungs in bed-rest, fluids, good substantial and high vitamin diet, and postural drainages. We have our medicines proper including antiseptics, expectorants, and cough preparations, and we must or should not allay the cough too much, nor should we allow the cough to increase damage to the

delicate lung tissue. We also have vaccines, yet of questionable value, seemingly of definite value in some cases, questionable in others, yet worth trying; stock and autogenous, more or less of specific organisms, or polyvalent. Staphylococcus vaccine, a recent development, has not been tried yet. Lierle of the University Hospital states in a letter in regard to bronchiectasis, that they have tried various antiseptics (including argyrol, monochlorophenol, and phenyl mercuric nitrate, etc.) and have found them to be of no definite value. He states also that they have tried autogenous vaccine, bacteriophage, etc., without apparent success, and adds that the usual procedure for treating their patients is to try to improve their general health by removing foci of infection, by diet, rest, and postural treatment.

Following palliative treatment in the acute stage, we may resort to bronchoscopy. In bronchoscopy we have a great diagnostic aid that will often indicate the proper treatment. In determining obstruction where the x-ray fails, treatment is often accomplished at the same time. We have enthusiasts and those who claim very little or no benefit by bronchoscopic treatment. Again quoting Lierle, "bronchoscopic aspiration as a cure for bronchiectasis in general has been rather disappointing. It is quite true that some of the early cases, especially in children, have received very definite benefit and perhaps one might say with qualifications, cures. In moderately advanced and in advanced cases, we have had an occasional excellent result, but in general it seems to me that the treatment for the most part is palliative and that with the discontinuance of treatment, most of the patients return to their original status." Vinson of the Mayo clinic mentions "the improvement in diagnosis and treatment of pulmonary diseases that has followed more general employment of direct visualization of the tracheobronchial tree with the aid of the bronchoscope." He states that its use has extended from the hunt for foreign bodies, and is even extending into the acute phases as well as the chronic; that marked results have been obtained in bronchoscopy in treatment of postoperative atelectasis of the lung; and that bronchoscopic treatment for bronchiectasis has been found to be not so beneficial for lasting effects, but gives temporary relief by aspiration of secretions.

As for the use of the bronchoscope in other conditions of the chest, Vinson affirms that "the use of the bronchoscope in asthma and asthmatic bronchitis is more for confirmation of the condition; it may be used for dilation of bronchial strictures in abscess of the lung, it can be used for

the removal of foreign bodies, it can be used for recognition of neoplasms and in the further treatment by radiotherapy, surgical interference, or fulguration." There is a variation in the estimation of the therapeutic value of bronchoscopy, but there is an agreement on the diagnostic value, and after all that is an aid in treatment. Bronchoscopy does help to remove stagnant secretions, to dilate strictures, and to remove foreign bodies. We believe that in a large number of cases, prevention and early treatment could have avoided changes making bronchoscopy necessary, but where indicated, bronchoscopy has a certain value. Compression by pneumothorax is mentioned by some: this may be tried early and before the lung becomes too resistant, before too much fibrosis is present, if we are able to compress the bronchi as well as the alveoli, the part affected primarily by compression. As a last resort, surgical procedure may be considered, as stated by Maitland-Jones referring to bronchiectasis, "when well marked, when much foul sputum is present, when impairment to the general health is obvious, if the disease is confined to one lobe, surgical intervention should be considered." Removal of the affected lobe is the operation of election and owing to the great advance of thoracic surgery in recent years, this operation may now be undertaken with a reasonable risk by those experienced in thoracic surgery. Lierle states that "in many instances in bronchiectasis, lobectomy is advised," and "it seems to me that although this is a rather hazardous procedure, it is the real solution when it can be done."

Atelectasis may be by compression peripherally, but we will mention only in passing that those cases where the bronchus is obstructed, the therapy is indicated by the cause.

There are other non-suppurative conditions, or non-suppurative pneumonitis, that we might mention briefly. One is unresolved pneumonia, but here care is needed in diagnosis, as this could be a chronic interstitial pneumonia, an abscess, empyema or tuberculosis, etc., the condition present indicating whether the treatment should be symptomatic or expectant. Our attention is called by some to rheumatic pneumonia or pneumonitis, a condition we may not often see or diagnose. In emphysema one should seek the offending allergic factor.

Lung abscess is not an infrequent condition. Here at times a bronchoscopic examination may help in the diagnosis, probably by drainage so that the fluid level may be determined, if it was rather obscure before drainage. Abscesses may be single or multiple; these may be metastatic

following a carbuncle. The treatment is expectant, with careful observation with roentgenologic aid. A certain number of abscesses heal with spontaneous rupture and drainage. Our late Dr. Hedbloom says that "Pulmonary abscess is such a serious menace to the patient's life and health, the possible complications so many and grave, and so difficult to cure that every possible precaution should always be taken toward its prevention."

Assuming that an abscess is present, and having concluded that the condition is not tuberculosis, a bronchiectasis, empyema with a draining fistula or an interlobar empyema and maintaining supportive treatment, active treatment may be indicated if spontaneous rupture does not occur; bronchoscopy may be indicated to dilate or open a bronchus. The position of the abscess will indicate the treatment. Compression by pneumothorax may be of service if the abscess is not too near the periphery and even here compression may be used if carried out cautiously; bronchoscopy cannot be done if the abscess is too near the periphery. The choice of method is, of course, the most simple and the safest procedure with treatment by thoracotomy if necessary.

Most of us remember when immediate radical drainage for empyema was chosen just as soon as the needle disclosed pus. It is not now treated as an emergency, but on the other hand, we should not wait too long. Aspiration alone will cure the occasional case, but when the pus becomes too thick for aspiration or after aspiration has been done two or three times, with or without substitution by air and there is indication that it will have to be continued, further treatment by drainage may be indicated. The choice of closed or open drainages, interrupted or continuous methods, and irrigations, we believe, is best left to the individual case.

We cannot say much concerning therapy for lung tumors, unless the x-ray may be of some service. Lobectomy may be done if the tumor is confined to a lobe and if it is primary, but we stress the "ifs."

Reviewing briefly, most non-tuberculous pulmonary disease may be said to be secondary to other conditions depending upon the basis of etiology. If the majority of diseases of the lungs is secondary, much can be done in prophylaxis, such as:

1. Clearing up foci of infection.
2. Early removal of foreign bodies.
3. Watchfulness and care of patients, especially those with persistent cough, following whooping



cough, etc., or following any upper respiratory infection.

4. Operative care because of possible aspiration of infected particles or closure of a bronchus by a mucous plug, etc.

Because of the very nature of pulmonary disease, because of the anatomic structure of the chest, and the histologic structure of the parts, treatment is necessarily prolonged and often radical, although in some cases we obtain beautiful results. Therefore, prophylaxis, insofar as pulmonary disease is concerned, is vastly important.

#### Discussion

**Dr. John Russell, Des Moines:** Dr. Johnson has covered the subject so well that there is very little left for me to add. The respiratory system constitutes an important portal of entry for many diseases, and is exposed to a greater variety of adverse elements than any other system of the body. When we consider the extreme variations in temperature and humidity of the inspired air; its heterogenous bacterial content; the great amount and variety of foreign material in the form of dust, gases, and other extraneous substances introduced into the lungs, and the systemic toxins and metabolic products to which the pulmonary endothelium is constantly exposed through capillary circulation, we must realize the many diverse etiologic factors with which we have to contend. That a considerable overlapping of pathologic processes occurs is self evident, and this factor should be considered in applying our therapy.

Time will not permit a detailed discussion of drug therapy. Our medical treatment consists largely of symptomatic and palliative measures having an empirical background. Our drugs are as varied and as numerous as the pharmaceutical houses whose silver tongued representatives beguile us with the superior virtues of their particular products and instruct us in their usage. Our efforts to develop specific therapy have been rewarded with little success, as our knowledge regarding the specific nature of these diseases is still inadequate, despite our frequent and intimate contact with them. If and when specific therapy becomes an actuality the incidence of both the acute and chronic respiratory diseases will be greatly reduced.

Bronchoscopy is becoming increasingly recognized as of great value in the treatment of bronchiectasis, pulmonary abscess, and massive atelectasis. Unfortunately it is often unavailable for many who might be benefited by its use because of the expensive equipment and trained operative team required. Some early cases of bronchiectasis will undoubtedly be cured by routine bronchoscopic treatment, and many others will be restored as respectable members of society and to economic usefulness. No other method of treatment holds as much promise for these unfortunate persons as does bronchoscopy. Consid-

erable success has also attended the routine use of lipiodol in these cases.

Postural drainage continues to be the most universally applicable procedure for the evacuation of bronchiectatic accumulations and pulmonary abscesses which have ruptured into a bronchus. The posture of the patient must be adapted to the location of the abscess and changes in posture are sometimes required in order to facilitate drainage.

The rôle of surgery in the treatment of respiratory diseases is rapidly increasing in importance. Lobectomy in suitable cases of bronchiectasis is becoming accepted as a rational although somewhat hazardous treatment, and holds great promise for the future as more experience is acquired. Pneumonectomy has also been successfully done in a small number of reported cases and may become the method of choice in early cases of malignancy. The surgical drainage of favorably situated pulmonary abscesses is a rational procedure and is usually done by a two stage method. In addition to drainage, thorough aeration of the abscess cavity is very important, and is often best accomplished by surgical means. Neoarsphenamine may be of value in pulmonary abscess cases in which there is a spirochetal infection.

Compression of the lung in abscess cases is of much value and should be attempted in a greater number of cases than is being done at present. It will probably fail where pleural adhesions are present and may prove to be of little value in chronic cases where the wall of the abscess cavity has become dense and fibrotic. Some advise against its use where the abscess is situated in the periphery of the lung, lest it rupture into the pleura forming an acute empyema. Artificial pneumothorax is not recommended in cases of bronchiectasis, since it is likely to be more harmful than beneficial.

#### CLINICAL NOTES FROM THE COLLEGE OF MEDICINE

#### NINE AND ONE-HALF YEARS' EXPERIENCE WITH CESAREAN SECTION AT THE UNIVERSITY OF IOWA\*

WILLIAM F. MENGERT, M.D., Iowa City

Sixty-seven cesarean sections were performed in the department of obstetrics and gynecology from July 1, 1926, to November 1, 1935, among a total of 5,446 deliveries; an incidence of 1.2 per cent or twelve cesarean sections in every 1,000 deliveries. For the purpose of this study, cesarean section is defined as the abdominal removal of a fetus, weighing 1500 grams (3.3 pounds) or more, from the pregnant uterus. Three mothers, 4.5 per cent, and four babies, 5.9 per cent, did not survive. The fetal death rate is calculated

\*From the Department of Obstetrics and Gynecology, State University of Iowa.

from a total of 68 babies, as there was one twin pregnancy in the series.

INDICATIONS

The indications for operative intervention are shown in Table I. With 42 operations performed because previous cesarean sections had been done elsewhere, it can be seen that only 25 patients were

University Hospitals are given in Table II. Eleven of the previous cesarean sections were done for undetermined reasons. Three of the

TABLE I  
INDICATIONS FOR CESAREAN SECTION

	Patients	
	Number	Per Cent
Primary cesarean section done elsewhere (Including: three patients with minor grades of contracted pelvis, in themselves not sufficient indication for abdominal delivery.)	42	62.8
Disproportion (nearly all relative)	12	17.8
Soft tissue dystocia, (i. e., severe scarring of vagina and/or perineum)	3	
Interruption of pregnancy (done for sake of mother, without regard for the child)	3	
Obstructing tumor	2	19.4
Edema of vulva	2	
Ankylosis of hip	1	
Carcinoma of cervix	1	
Transverse presentation	1	

submitted to primary abdominal delivery during the period under discussion; a corrected cesarean section incidence of 0.46 per cent. Twelve operations were done because of disproportion, which in the majority of instances was relative, with the abdominal route chosen for the sake of the baby. In three instances soft tissue dystocia, due to vulval and vaginal scarring resulting from a chemical burn in two cases, and trauma in one, was the indication for cesarean section. Three patients were so ill, two from essential hypertension, and one from an acute and violent mania that prompt termination of their pregnancies, without regard for the babies' chances of survival, seemed advisable. The two obstructing tumors were: a grapefruit sized ovarian cyst, and an orange sized carcinoma of the sigmoid. It will be noted that toxemia of pregnancy was never used as an indication for abdominal delivery, but that two operations were done because the external genitalia were too edematous to allow safe passage of a child. In each case the vulval edema occurred in the course of a pregnancy toxemia, but the toxemia *per se* was not the real indication for operation. Figures I and II show preoperative and thirteen day postoperative views of the vulva in patient L. M., hospital number H3412.

The probable indications for the 42 primary cesarean sections which were not done at the



Fig. I. L. M., Hospital number H3412. Ante partum view of external genitalia showing marked edema of vulva.



Fig. II. External genitalia of same patient 13 days post-cesarean.

remaining patients, i. e., two with contracted pelvises and one with an ankylosed hip, probably would have been delivered abdominally in this

TABLE II  
INDICATIONS FOR THE CESAREAN SECTIONS PERFORMED BEFORE THE PATIENT WAS ADMITTED TO THE UNIVERSITY HOSPITALS

Reason not known by patient	11
"Contracted pelvis" (measured as adequate at University Hospitals)	8
Toxemia	5
Unusual presentations	4
Breech..... 1	
Transverse..... 2	
Occiput posterior..... 1	
"Rigid cervix"	3
"Overdue"	3
Bleeding	3
Placenta praevia..... 2	
Premature separation.... 1	
Contracted pelvis, (subsequently confirmed at University Hospitals)	2
Ankylosed hip	1
Congenital, bilateral dislocation of hips (Pelvis normal)	1
Mistaken diagnosis (Laparotomy was performed because the patient was believed to have an abdominal tumor)	1



clinic, while 28 probably would have been delivered from below.

TYPE OF OPERATION

Table III shows the type of operation performed in this clinic. The large number of classical cesarean sections performed is explained by the fact that in the majority of our patients, it was known long before the onset of labor that abdominal operation would be necessary. In-

TABLE III  
TYPE OF CESAREAN SECTION\*

	Patients	
	Number	Per Cent
Classical (including removal of an ovarian cyst)	54	80.7
Low	6	9.1
Radical (with total or subtotal hysterectomy)	7	10.4

\*54 operations were done before the onset of labor; 13 after.

asmuch as the classical cesarean section, done before the onset of labor, is probably as safe as and certainly much simpler technically than the low cervical operation, there seems to be little point in attempting the latter in such cases. It is impossible to do the usual cervical operation until the lower uterine segment forms, and this, as a rule, takes place sometime after the onset of labor. In the so-called "low cervical" section done electively, a longitudinal uterine incision always extends into the lower part of the body and the operation is actually a low, classical section. The cesarean hysterectomy operation was used: (a) when the patient was frankly infected; and (b) when there were associated pathologic changes such as uterine fibroids or carcinoma demanding removal of the uterus.

COMPLICATIONS

The three maternal deaths were due to:

- 1. Spinal anesthesia. This was actually a post-mortem cesarean section because the patient was dead before the abdominal incision was made.
- 2. Peritonitis from the rupture of an unrecognized carcinoma of the sigmoid. The peritonitis precipitated labor and was evident when the abdomen was opened.
- 3. Peritonitis acquired at the time of elective operation before the onset of labor, no vaginal examination or manipulation having been done.

Morbidity, defined as a fever of 100.4 degrees or more occurring at any time during the puerperium, with temperatures being taken every four hours, is shown in Table IV. Other, non-fatal, maternal, postoperative complications, each occurring once, included: utero-abdominal fistula, thrombophlebitis, and postoperative collapse of

one lung. There were four fetal deaths. Two of these babies weighed 1500 grams (3.3 pounds) and 1768 grams (3.9 pounds), respectively, and were delivered from two of the three patients

TABLE IV  
MATERNAL MORBIDITY

Postoperative Fever* (100.4 degrees F., or more)	Patients	
	Number	Per Cent
None	14	20.9
One day	13	19.4
Two to three days	21	31.4
Four to seven days	11	16.4
More than seven days	8	11.9

\*Temperatures recorded every four hours.

whose pregnancies were interrupted because of pre-existing acute disease. One baby was an achondro dystrophic dwarf, unrecognized prior to delivery despite routine roentgenologic examination of the mother. The film showed a baby with apparently normal head and body, but the foreshortening of the arms and legs was not detected and could not be demonstrated even after the condition of the child was known. The fourth fetal death occurred in one child of the twin pregnancy.

RUPTURED UTERUS

Two patients, not included in the present series of 67 cesarean sections, had undergone primary cesarean section elsewhere and were candidates for a repeat operation, but uterine rupture at the site of the previous scar occurred spontaneously before the onset of labor. Each patient was treated for shock, hysterectomized and survived, but both babies were lost. Since there were, in all, 44 women who had undergone primary cesarean section elsewhere and we observed ruptured uterus in two, the incidence of post-cesarean rupture is 4.5 per cent. Unquestionably the incidence of rupture would have been greater had all of the 44 patients gone into labor and thus subjected the uterine scar to the stresses of uterine contraction. Although each of these two patients survived, such is not usually the case, for it is generally recognized that nearly two-thirds of all patients with ruptured uterus succumb. It is felt that elective cesarean section offers the best chance of survival for mother and baby in a patient who has undergone previous abdominal delivery for an accidental complication of pregnancy or labor. However, if a spontaneous labor intervenes and the woman is seen in her third pregnancy, cesarean section is not advised since it is believed that the uterine scar has proved its adequacy by a therapeutic test.

## THE FINLEY HOSPITAL CLINICO-PATHOLOGIC CONFERENCES

### ACUTE INTESTINAL OBSTRUCTION DUE TO AN IMPACTED GALLSTONE

F. P. McNAMARA, M.D., L. A. FABER, M.D.,  
and A. B. NESLER, M.D., Dubuque

An impacted gallstone is a well known cause of intestinal obstruction, but its recognition clinically is often delayed. Probably this is largely due to a failure to consider it as a possible cause. Obstruction of the small intestine soon produces a profound toxemia which may result in the death of the patient if treatment is deferred. Therefore, it is important to make an early diagnosis and institute treatment. The following case illustrates some of the important clinical features of the condition.

#### CASE REPORT

*Chief complaint:* The patient, a white woman, seventy-one years of age, was admitted to The Finley Hospital July 13, 1935, with a complaint of "pain in the upper right side of the abdomen, nausea, and the vomiting of bile colored fluid" for the past five days.

*Family history:* The patient's mother died of tuberculosis but otherwise the family history was unremarkable.

*Past history:* The patient had a thyroidectomy seventeen years ago. She had had hypertension and gallbladder trouble for four or five years, and had been told that she had gallstones. She had always been constipated.

*Present illness:* Six days before admission, after eating her dinner which contained mutton fat, she began to have epigastric pain which localized in the right upper abdomen and radiated to the back and to the region of the right scapula. The next day she became nauseated and vomited bile colored fluid. The nausea, vomiting, and pain persisted for five days.

*Physical examination:* The patient was a moderately obese, old lady evidently acutely ill. The head, neck, and lungs were negative. The pulse showed an intermittent beat every third to sixth beat. The left heart's edge reached the anterior axillary line. There was a systolic murmur heard over the base and apical region. There was tenderness over the right costovertebral region and especially over the gallbladder region. She was also tender over the appendix region. There was no rigidity of the muscles and the abdomen was not distended. The extremities were negative. The patient's temperature was 100.8 de-

grees; pulse 138; and the respirations 24 per minute. The white blood count was 6,900 and the hemoglobin was 100 per cent. The urine showed a trace of albumin, numerous granular casts and an occasional erythrocyte as well as a moderately strong test for acetone.

*X-ray examination:* A flat film of the abdomen showed a marked distention of the small bowel characteristic of obstruction. In the right upper quadrant there was a peculiar air shadow corresponding especially to the cystic duct and probably due to air in the gallbladder and duct. This would indicate rupture of the gallbladder into the bowel.

*Provisional clinical diagnosis:* Cholecystitis and cholelithiasis; chronic appendicitis; chronic valvular heart disease; bowel obstruction.

*Course in hospital:* Gastro-intestinal suction was instituted with fair results. In spite of it the patient was very restless at first and had one attack of vomiting. The vomitus contained bile and a moderate sized gallstone. On the morning of admission a chemical examination of the blood gave the following results: urea N2 47.60 mgs.; T.N.P.N2 85.50 mgs.; sugar 166. mgs.; chlorides 440 mgs.; creatinin (preformed) 2.5 mgs. A normal salt solution with five per cent glucose was given by hypodermoclysis and a fifty per cent glucose solution was given intravenously, preparatory to operation. In spite of treatment the pulse rose to 160 and the patient became cyanotic. The abdomen became distended. She obtained slight benefit after being placed in an oxygen tent, but failed rapidly and died twenty-two hours after admission.

*Final clinical diagnosis:* Chronic cholecystitis and cholelithiasis with bowel obstruction due to gallstone; chronic valvular heart disease, hypertension; chronic appendicitis.

*Autopsy (Abstract):* At the autopsy, obstruction of the small intestine due to an impacted gallstone was found twelve feet from the duodenum. Above this point the small intestine was greatly distended and dark red in color and filled with very foul smelling fluid material. The gallbladder was surrounded by adhesions and was bound to the duodenum and transverse colon. On dissection a small fistula extended from the transverse colon through the thickened wall of the gallbladder. A larger fistula communicated with the duodenum. The gallbladder, cystic, hepatic and common bile ducts contained precipitated bile salt. The heart showed fibrosis of the myocardium and moderate arteriosclerosis of each coronary artery. The aorta also showed a moderate arteriosclerotic change. There was a small area of consolidation in the left lung. There was a



bilateral fibrous pleurisy, and aside from the generalized arteriosclerosis, the only other findings were a small simple cyst of the liver and a benign polyp of the uterus.

*Anatomic diagnosis:* Primary: Chronic and subacute cholecystitis and cholelithiasis, with adhesions to the pylorus, duodenum and transverse colon; ulceration of gallstone into the duodenum; impacted gallstone of the ileum with intestinal obstruction; fistula between the gallbladder and transverse colon; lobar pneumonia.

*Subsidiary:* Obesity; generalized arteriosclerosis; fibrous myocarditis; bilateral fibrous pleurisy; simple cyst of the liver; benign uterine polyp.

#### SUMMARY

The patient was an obese old lady with a history of cholecystitis of at least five years' duration. Six days before admission she had had an attack of pain following a meal, but the pain was not as intense as the usual gallstone colic. For five days she vomited and the pain persisted. The vomitus contained bile which indicated that there was no obstruction of the common duct. Upon admission the patient was in severe shock and the clinical picture was that of intestinal obstruction associated with gallbladder disease. A flat plate of the abdomen confirmed the diagnosis of intestinal obstruction. On one occasion the vomitus contained a gallstone. Therefore, the probable diagnosis was bowel obstruction due to a gallstone and this was verified at autopsy. It is regrettable that the diagnosis was not made sooner, since the condition might have been cured by surgery.

#### DISCUSSION

*Incidence:* A review of the literature from 1931 to June 1935 shows that 46 cases of bowel obstruction due to gallstones were reported. In 1914 Von Wagner<sup>1</sup> collected reports of 334 cases. In 1934 Hennessy<sup>2</sup> states that in a series of 562 cases of intestinal obstruction, Braun reported twelve due to gallstones. Hennessy also states that Rath, Schroeder and Schloth in 10,866 routine autopsies encountered 49 instances of internal biliary fistula, 19 of which communicated with the duodenum and 16 with the colon. The condition is found in females over males in a ratio of three to one.

*Etiology:* It is evident that a gallstone sufficiently large to produce intestinal obstruction could not pass through the common bile duct. Therefore, it is necessary that the stone enter the intestine through a fistula. Another possibility is that a small stone which enters the intestine through the common duct may attain sufficient size due to fecal concretions to cause obstruction.

In the case reported there was in addition to cholelithiasis a well marked pericholecystitis with adhesions to the transverse colon and duodenum. Between each of these and the gallbladder there were fistulas. Evidently the stone had entered the one communicating with the duodenum, and passed along the small intestine for twelve feet. In a series of 116 cases studied by Eisenfarb<sup>3</sup> the sites of obstruction were as follows:

Duodenum . . . . .	5	Ileocecal valve . . . .	13
Jejunum . . . . .	17	Colon . . . . .	13
Ileum . . . . .	67	Rectum . . . . .	1

The most frequent site is 50 to 60 centimeters above the ileocecal valve. This is where the intestinal lumen is narrowest. Spasm of the intestinal wall due to irritation by the stone undoubtedly plays a major part in causing the obstruction. If this were not true the intestine would dilate and allow the passage of the stone.

*Pathology:* As soon as impaction occurs there is violent peristalsis above in an attempt to overcome the obstruction. Peristalsis also occurs below the obstruction and empties the bowel leaving it collapsed. The peristalsis above soon ceases, and the bowel becomes distended with a large amount of toxic fluid, and fecal material. The accumulation of these toxins are the cause of the severe shock that accompanies high intestinal obstruction. Dehydration, loss of sodium and chloride in the vomitus with a consequent fall in blood chlorides and rise in nitrogen waste products are also factors in producing shock. Locally there are superficial erosions of the mucosa. The intestine contracts around the stone firmly, but ordinarily there is no interference with the blood supply as there is in volvulus.

*Treatment:* In general the treatment of intestinal obstruction due to a gallstone is like that of obstruction from other causes. The majority of cases are examples of high intestinal obstruction. They are characterized by vomiting, dehydration, toxemia, and shock which quickly follow the obstruction. In most cases it is these secondary conditions rather than the obstruction which cause death. Therefore, it is imperative that an early diagnosis be made and that enterotomy with removal of the stone be done before these secondary conditions have entered the picture. In a few cases resection of an inflammatory loop of bowel may be necessary, but in most instances enterotomy is all that is demanded. In cases in which the diagnosis has been delayed and in which vomiting has been severe the preoperative treatment is very important. Abundant salt solution and glucose should be given intravenously and rectally along with gastric syphonage, as described by Wangenstein, and external

heat and stimulation to overcome shock are essential.

*Prognosis:* Statistics indicate a mortality of 30 to 50 per cent of operated cases for this type of obstruction. The poor results are due to delayed operation. In non-operated cases the mortality approximates 100 per cent. In recent years the results have been somewhat better because of earlier diagnosis and treatment.

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#### FORMER IOWA ROENTGENOLOGIST DIES

The sudden and untimely death of Dr. Bundy Allen was a shock to his many friends in Iowa. Dr. Allen on Saturday afternoon, November 23, 1935, started from Tampa, Florida, to a hunting lodge accompanied by his son, Joe, and a colored servant. About one hundred miles from Tampa, near Bronson, Florida, their car collided with a bus loaded with twelve adults. Dr. Allen received an extensive skull fracture and an injury to his left chest. He never regained consciousness after the accident and died at 6:00 a. m., Monday, November 25, 1935. His son and the servant received severe bruises from which they both recovered.

Born at Carbondale, Illinois, on August 21, 1885, Dr. Allen was graduated from the public schools there and took his early college and premedic studies at the University of Indiana. He was graduated in 1912 from St. Louis University with a degree of Doctor of Medicine. After his graduation, Dr. Allen practiced general medicine in Keokuk, Iowa, and during that period became interested in x-ray. Two years later he was appointed roentgenologist at the University of Iowa Hospitals, Iowa City. After eleven years as head of that department he resigned and became associated with Dr. J. C. Dickinson of Tampa, Florida, practicing radiology.

Dr. Allen was a member of the Southern Medical Association, the Florida Medical Association, the Hillsborough County Medical Society; the Radiological Society of North America, of which he was a former president; American College of Radiology; American Roentgen Ray Society; American Medical Association and Royal Society of Roentgenology of England. He was also a Rotarian, a Mason and a Shriner, and a Lieutenant-Colonel in the Officers' Reserve Corps, United States Army.

Dr. Allen is survived by his wife, the former Edith Cocherrom, to whom he was married in December, 1912, and one son, Joseph.

T. A. Burcham.

#### THE NEW U. S. PHARMACOPOEIA, ELEVENTH REVISION

The U. S. P. Board of Trustees released the U. S. P. XI on December 16, 1935, and has announced June 1, 1936, as the date when its standards shall supersede those of the U. S. P. X.

In presenting this revision of the pharmacopoeia to the country the committee does so with the confident belief that its scope and standards conform to the objective established by the 1930 pharmacopoeial convention and that it fulfills the present-day needs in its field for both medicine and pharmacy.

#### IMPORTANT NOTICE

The printing of the 1936 issue of the American Medical Directory will be started February 1. The names of physicians in good standing on this date will be printed in capital letters, thus indicating that they are members of their professional organizations. Physicians have sometimes lost coveted appointments because they were not so listed. Be sure that your medical society dues are taken care of so that your name will be properly classified in the 1936 American Medical Directory.

#### AMERICAN FOUNDATION STUDIES IN GOVERNMENT

Many physicians throughout the state have received letters from the American Foundation Studies in Government asking their opinion on various phases of medical practice, and have been undecided as to whether or not they should be answered. The American Medical Association offices have investigated this foundation and report that the member in charge of the foundation claims that the information requested is not to be a statistical study, that it is merely an endeavor to secure opinions from practicing physicians on the extent to which the practice of medicine is fulfilling its functions, and to obtain expressions of the manner in which deficiencies or shortcomings may be corrected if, and where, found. They claim to have no preconceived plan for the use of the material secured, but will submit it to the doctors giving the information before it is released for publication. The leaders of this foundation express every desire to keep in close contact with the American Medical Association and will welcome any suggestions, criticisms or assistance in the present study. They have offered to place the study in the hands of the Association for examination if desired.

#### EXAMINATION IN OPHTHALMOLOGY

The American Board of Ophthalmology has recently announced its 1936 examinations to be held in Kansas City, May 11 (at the time of the meeting of the American Medical Association); and in New York City, in October (at the time of the meeting of the American Academy). All applications and case reports must be filed at least sixty days before the date of examination. For information, syllabuses and application forms please write at once to Dr. Thomas D. Allen, Assistant Secretary, 122 South Michigan Avenue, Chicago, Illinois.

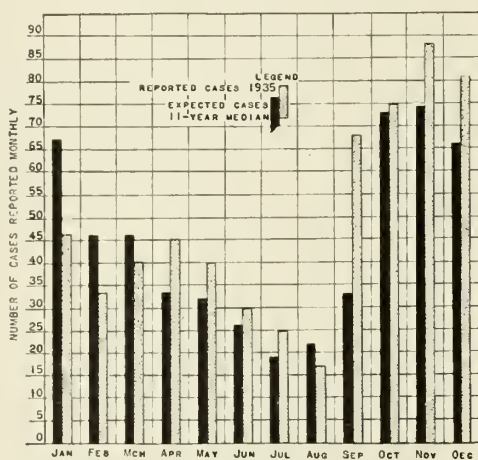


# STATE DEPARTMENT OF HEALTH

*Walter L. Diering*

## PICTORIAL REVIEW OF COMMUNICABLE DISEASE REPORTS IN IOWA

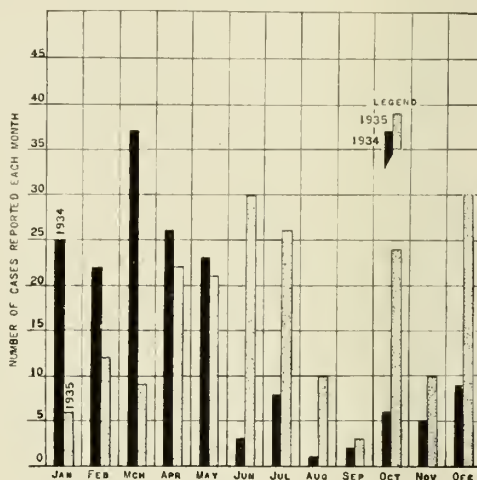
The accompanying bar diagrams present a comparative study of reported and expected prevalence or incidence of various infectious diseases during the months of 1935 (through Friday, December 27). The diseases considered are diphtheria, smallpox, typhoid fever, meningococcic meningitis, poliomyelitis and scarlet fever. The black bars (with the exception of the diagram for smallpox) are based on communicable disease reports reaching the State Department of Health during the past ten to twelve years. The stippled bars in all instances show the prevalence of the diseases concerned, during the months of the past year, 1935.



DIPHTHERIA MORBIDITY IN IOWA  
Comparison of reported cases in 1935 and expected number of cases, based on 11-year average (Median) for period 1924-1934.

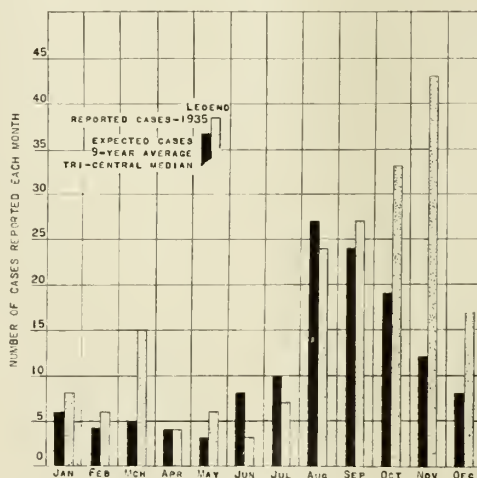
Figure 1 indicates, that except for the month of August, reported cases of diphtheria in 1935 were in excess of the expected number of cases. Deaths from this disease in 1935 will exceed the number for the two preceding years and may approximate the 63 fatalities caused by diphtheria in 1932.

The bar diagram (Figure 2) compares the number of cases of smallpox reported by months, for 1934 and 1935. It will be noted that, beginning with June, 1935, monthly reports for 1935 were greater than in the preceding year. However, the



SMALLPOX IN IOWA  
Number of reported cases in 1935 as compared with 1934.

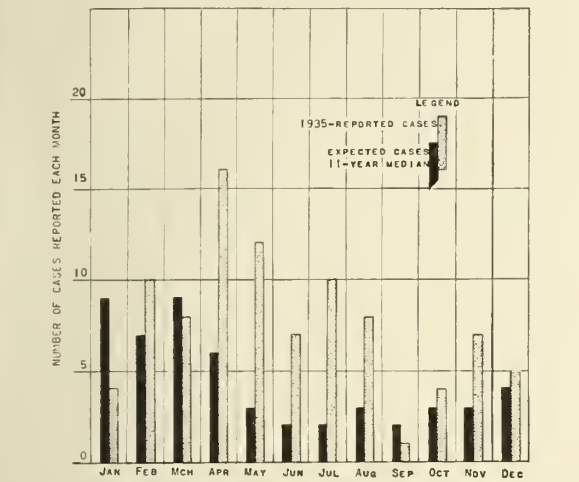
total number of reported cases of smallpox in 1935 represent less than seven per cent of the 3,044 cases reported in 1930.



TYPHOID FEVER IN IOWA  
Comparison of reported cases in 1935 and expected number of cases, based on a 9-year average.

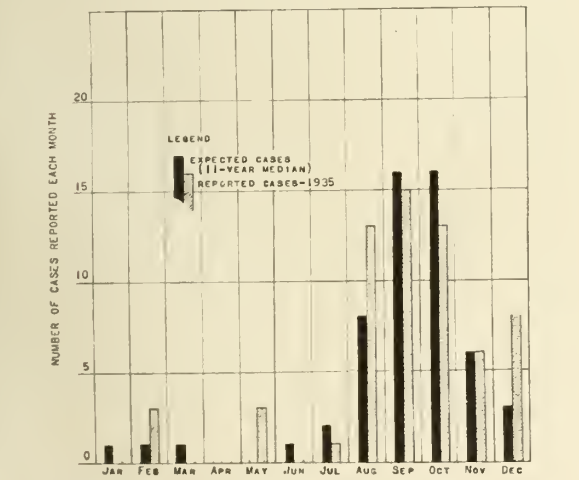
Figure 3 shows that reported cases of typhoid fever exceeded the expected number of cases in eight of the twelve months. During October, the excess number represented sporadic cases from various counties. The unusual increase of reported cases in November is due to the water-borne epi-

demic which occurred at the Polk County Farm, as reported in the December (1935) number of the JOURNAL, page 679. To date (December 28)



EPIDEMIC MENINGITIS IN IOWA  
Reported cases in 1935 compared with average (11-year Median) for period 1924-1934.

the total number of cases in the above mentioned outbreak is 38, two cases resulting fatally.  
Reported cases of meningococcic meningitis in 1935, as indicated in Figure 4, were considerably

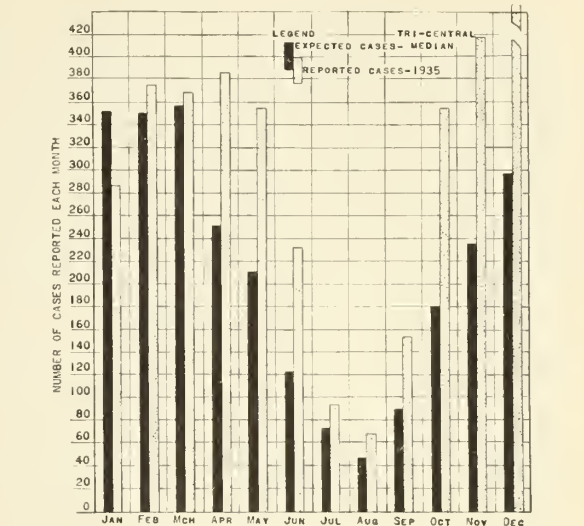


POLIOMYELITIS OR INFANTILE PARALYSIS IN IOWA  
Comparison of reported cases for 1935 with expected cases for 11-year period 1924-1934.

in excess of the expected number, in nine out of twelve months.

Poliomyelitis (see Figure 5) failed to develop unusual prevalence in Iowa in 1935. The report of three cases (one fatal), from Clinton county in December, indicates unusual activity of the virus for this season of the year.

It is apparent from Figure 6, that except for January, the reported incidence of scarlet fever during 1935, represents for most months, a great



SCARLET FEVER MORBIDITY IN IOWA  
Comparison of reported cases in 1935 and expected number of cases based on 9-year period 1926-1934.

increase over the expected number of cases. During December alone (through December 27), 627 cases of scarlet fever were reported to the central health office in Des Moines.

CONVALESCENT SCARLET FEVER SERUM

Beginning Monday, January 13, 1936, the State Department of Health will have available for distribution to physicians and hospitals in Iowa, a limited amount of convalescent scarlet fever serum. This serum is used for passive immunization of susceptible contacts and for the treatment of severe cases of scarlet fever or related streptococcic infections.

On December 24, 1935, the department cooperated with Sidney O. Levinson, of the Samuel Deutsch Serum Center, in obtaining blood for the preparation of convalescent scarlet fever serum. The morning was spent at the City Hall in Des Moines, H. E. Ransom, M.D., city health commissioner, collaborating with preliminary and other arrangements. In the afternoon, work was done at the hospital in Boone, preliminary arrangements having been made with the aid of William Woodburn, M.D., city physician. Public health nurses assisted with the work in both places. A total of twenty-four persons volunteered for this service. Although most of the donors lived in Boone or Des Moines, a number were from Carlisle, Norwalk and Perry. Each donor contributed on an average, 250 c.c. of blood, and received five dollars as remuneration.

The list of prospective donors for work of this kind is based on cases of scarlet fever reported to the department in the usual manner, on individual



# The JOURNAL of the Iowa State Medical Society

ISSUED MONTHLY

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**WE TRAVEL ONWARD**

Another twelve months have passed into history, and we stand ready to pursue our destinies and fortunes through a new year. The record of the past year, its accomplishments, its disappointments and its failures are now apparent. What is ahead? Fortunately the future is a closed book, and must be read page by page as the days pass. To some we are merely creatures of a pre-determined destiny, immutable and beyond our control. To others destiny is of our own fashioning, and it may be good or bad, as we will. No doubt the truth lies in a position mid-way between these two extremes. Most of us would accept the immutability of certain factors which determine our future, and at the same time endorse with equal enthusiasm the thought that, within limitations, man shapes his own destiny.

When a ship leaves harbor the captain, crew and passengers travel under orders with the common objective in view. Outside influences may hinder or delay the achievement of this goal, or entirely reshape the destiny of the voyage. These altering influences may originate in the offices of the shipping line, in a port of a call, or with the authorities of the port of destination. Again, unfavorable weather, unexpected storms, or uncharted reefs may prove the deterrent. Finally the course may be altered by a decision of the captain or a breakdown in the machinery necessary for the operation of the ship. In any event, the pre-determined destiny of this voyage is reshaped by factors either within or without the control of those who travel.

As we stand on this, the threshold of a new year, we as physicians, fused in fraternity by common interests, are traveling to a destiny. We travel under orders issued by the public we serve and influenced by the conditions of the times. We have not and will not lose our voice in formu-

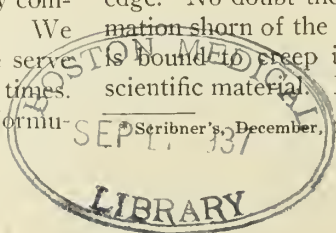
lating these orders unless our position is weakened by lack of unity, the result of dissension and discord. We do not believe that the destiny of medical practice should be ordered solely by a public unfamiliar with the problems of medical practice. It is equally untenable to hold that the profession should disregard public opinion and shape a destiny regardless of a public demand. Again a mid-point may best serve all interests.

To arrive at this favorable position, however, a spirit of give and take is required. We must conform to the spirit of the times in accepting economic adjustments, but we must remain firm and courageous for those principles which are vital in our practice. If we are not agreeable to a subsidized plan of medical practice under governmental direction, if we are unwilling to relinquish the privileges of private practice, or if we are averse to a program formulated and dictated by economists and sociologists only superficially familiar with medical problems, we should actively engage in an educational campaign attempting to acquaint the public with the accomplishments, limitations and ideals of our practice, and assist in their search for a program which is economically sound. Armed with full knowledge concerning these vital problems, fantasy, speculation and untried theories will be easily routed. Through fraternity of spirit and unity of purpose, we may remain masters of our destiny throughout the new year and look back, in another twelve months, with justifiable pride to objectives attained.

**PROGRESSIVE PSYCHIATRY**

The appearance of books and magazine articles dealing in a popular way with modern psychiatric procedures is no longer a novelty. Such titles as, "Am I Losing My Mind," "Behind the Door of Delusion," "Asylum," "What Makes Us Seem So Queer" and the most recent one, "Man's Last Specter,"\* are familiar to all.

That the intelligent layman is concerned with the problems of mental disease and health is indicated by the fact that many high class publishers are willing to devote valuable space to such articles and also by the intense interest with which the layman reads and discusses these articles. The public needs and wants authentic professional information as to what we now know about mental disease and just what we are doing with this knowledge. No doubt the public would welcome information shorn of the emotion and melodrama which is bound to creep into popular presentations of scientific material. In fact, it is high time that we



\*Scribner's, December, 1935.

as physicians concern ourselves with the matter lest we again find ourselves in the uncomfortable and embarrassing position of follower rather than leader, just as physicians a generation ago found themselves following the lead of a layman, one Clifford W. Beers.

It appears that psychiatry has in recent years moved forward with tremendous rapidity as if to catch up with the rest of medicine. The knowledge of psychiatry attained in medical college, even a few years ago, is no longer adequate for our present needs and will no longer satisfy well informed persons seeking relief from their neuroses and psychoses. They have been keeping up to date in their way by reading popular articles and it behooves us to do likewise by different, more difficult but none the less important, reading and observation. It would seem only fair to expect the general practitioner to know the possibilities and limitations of the latest and best treatment for neurosyphilis to the end that no patient be denied whatever benefit might accrue from prompt and proper management. He should know where he stands on such controversial subjects as psychoanalysis and the relation of the endocrines and focal infection to mental disease, and why. He should know which ones of his juvenile patients are likely to be benefited by the procedures of a child guidance clinic and whether his adult nervous and mental patients should enter the Psychopathic Hospital or the State Hospital. He might also know the uses and dangers of "prolonged narcosis" and be able to discuss the psychiatric applications of hydrotherapy and occupational therapy.

The above program, suggested by a practicing psychiatrist, might seem at first glance rather formidable. However, all the material necessary for such a reading course is in our own State Medical Library and its study we are assured will acquaint us with the latest, and, we hope, the best of psychiatric thought and procedure.

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#### THE PROBLEM OF THE HARD OF HEARING

The increasing number of individuals classified as hard of hearing has directed the attention of the medical profession in particular, and the laity in general, to the efforts of various organizations in their work to prevent and ameliorate this handicap. The Minnesota State Medical Association has recently appointed a Committee on Deafness Prevention and Amelioration, with the avowed purpose "to stimulate interest in the prevention of deafness, the conservation of hearing and the

amelioration of the condition of those handicapped by impaired hearing, and to cooperate with other agencies having a like objective." The committee is anxious to learn of similar work being done in other state societies,\* and earnestly request cooperation in undertaking the following activities:

1. Promoting the periodic testing of the hearing of school children by modern methods as the most effective way to discover hearing loss and secure prompt removal of causes.

2. Arranging for demonstration of audiometric surveys of school children to introduce the idea among medical, social service, educational and parent-teacher groups.

3. Providing qualified speakers to present the problems of the hard of hearing before medical societies, public health, educational and other organizations.

4. Stimulating interest in community effort on behalf of the deaf and hard of hearing.

5. Disseminating authentic information regarding the detection of the deafened preschool child, his home and school care.

6. Protecting the deaf and hard of hearing against the imposition of quacks and fake cures.

7. Assisting in the amelioration of the condition of the hard of hearing by encouraging them to secure the best help in bringing about their educational, social and economic rehabilitation, and putting them in touch with the local and national agencies specializing in this field.

8. Furnishing reliable, unprejudiced information regarding the possible applications, performance and limitations of hearing aids, both to the physician and the hard of hearing.

It has been suggested that Iowa offers a fertile field for carrying on work of this nature, and plans are now being formulated for a similar program to be inaugurated in Polk county, outside of the city of Des Moines. A survey will be made of all hard of hearing individuals, and different methods of dealing with their problems will be introduced. It is the hope of those interested in this important work that from these efforts on a small scale, a program will be originated which can be recommended to other counties, and that eventually it will be possible to contact and aid every hard of hearing person in the state of Iowa. Most important, of course, is the periodic testing of school children, in order to discover these unfortunate individuals at an early date, but a great

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\* Headquarters of the committee are at 527 Medical Arts Building, Minneapolis, Minnesota.



majority of the work will consist in bringing about educational, social and economic rehabilitation for the young adult who finds himself facing the world with this serious handicap.

### SUGGESTIONS CONCERNING MALPRACTICE SUITS

All members of the Iowa State Medical Society are requested to read the following comments concerning malpractice:

1. Do not talk to a prospective plaintiff or his lawyer about the merits of a threatened suit, or one which has been instituted. What you say may be used against you.
2. If you receive a court notice, you will have to secure legal help, but do not forget that the State Medical Society is not obligated to pay any lawyer you may personally employ unless you have received the sanction of the Board of Trustees for such employment. (Constitution and By-Laws: Chapter VIII, Section 8.—Medico-Legal Committee— . . . They shall not pay, or obligate the Society to pay, a judgment against any member; *nor shall they pay or obligate the society to pay for legal counsel not authorized by the Board of Trustees.*
3. In the event that a member is obliged to answer a court summons on short notice, he should communicate by long distance phone with the Secretary of the Society, or with a member of the Medico-Legal Committee before employing a local lawyer, because permission must be obtained from the Board of Trustees for such employment or else the member must pay the local lawyer out of his own pocket. As a rule, ample time is afforded for a member to communicate with a member of the Medico-Legal Committee so that the Society's lawyer can be put on the case.
4. Where a member is insured by a commercial company, it is usually best to let said company conduct the defense in case of a malpractice suit, but under the By-Laws of the Society, it is obligated to assist in the defense if there is any good reason for so doing, or if the member insists on interference by the Society. There is no intention on the part of the Society to refuse legal assistance, but since the same lawyer employed by the Society is usually employed by the defense company most actively operating in Iowa, there is as a rule no sound reason for the Society's taking the matter in hand.
5. Any member threatened with a malpractice suit, or who has actually been sued, should send a detailed account of the circumstances leading up to the suit to a member of the Medico-Legal Committee, so that the Committee may be thoroughly conversant with the situation in case its assistance may be required.
6. Be very careful in talking to patients concerning what you may be able to do by way of surgical or medical treatment. Legal racketeers have recently attempted to extort money from physicians on the ground of failure to fulfill a contract. Physicians and surgeons should never make any definite promises of cures.
7. One cause of malpractice suits is a failure on the part of physicians to take patients and near relatives into their confidence. The day of the "treat-'em-rough and tell-'em-nothing" doctor has gone by. It is usually best for a surgeon, in talking to his patients or their relatives before operation, to be cognizant of surgical hazards. It is always safest to be frank concerning surgical risks.
8. Indigent patients are most likely to sue physicians. If non-pay patients are cared for, it is dangerous to slight their attention and management.

#### Medico-Legal Committee

Frank A. Ely, M.D., Des Moines, Chairman  
George C. Albright, M.D., Iowa City  
F. Earl Bellinger, M.D., Council Bluffs

### STATE DEPARTMENT OF HEALTH

(Continued from page 49)

report cards. Volunteers are individuals, twelve years of age or above, who within a period of three months have recovered from an attack of scarlet fever.

Articles dealing with convalescent scarlet fever serum appeared in numbers of the *Journal of the American Medical Association* for September 7 and 14, 1935, pages 783 and 864 respectively.

#### PREVALENCE OF DISEASE

Nov. '35 Oct. '35 Nov. '34

				Most Cases Reported From
Diphtheria	88	75	51	Black Hawk
Scarlet Fever	418	353	285	Pottawattamie, Black Hawk
Typhoid Fever	43	33	11	Polk
Smallpox	10	24	5	Black Hawk
Measles	23	7	905	Cass, Woodbury
Whooping Cough	109	85	51	Polk, Dubuque
Cerebrospinal				
Meningitis	7	4	2	(For State)
Chickenpox	354	149	485	Polk, Woodbury
Mumps	443	219	203	Boone, Jasper
Poliomyelitis	6	13	5	(For State)
Tuberculosis	15	48	25	(For State)
Undulant Fever	4	11	18	(For State)
Syphilis	10	0	0	(For State)
Gonorrhea	149	180	182	(For State)

## SPEAKERS BUREAU ACTIVITIES

### RECAPITULATION

Since the organization of the Speakers Bureau Committee some five years ago, its work has expanded steadily. One of the most important phases of this work has been the postgraduate courses which have been planned and presented in every section of the state and which have reached in that time a total of over twenty-three hundred men. Each year the enrollment in the courses increases, showing that the value of the training is appreciated by the physicians throughout the state. During 1935 alone, five hundred eighty-two men enrolled and attended the lectures. That constitutes over twenty-five per cent of the membership of the State Society, and does not include the men who attended single lectures. If they were included, the number would be over fifty per cent of the total membership. Such a figure is a splendid commentary on the type of physician engaged in practice in this state. During 1935 one hundred and twenty talks were presented before lay audiences, thus giving the public the advantage of knowledge of health problems and making it more alert to the possibilities of preventive medicine. There were also forty programs planned for county and district medical meetings, which is another step toward education of the profession in medical matters. Fifty-two radio talks were delivered, and many requests for copies of these talks were received and filled. The radio talks reach a large audience, and extend far beyond state lines. It has taken the assistance of many men to accomplish this work, and the Speakers Bureau Committee takes this opportunity to express the appreciation to all those who have cooperated so willingly in this program.

### POSTGRADUATE COURSES

The Speakers Bureau Committee will present a postgraduate extension course in diagnosis and therapeutics at Ames starting about the middle of February. The Boone and Story County Medical Societies are sponsoring this course, and all men adjacent to these counties are invited to attend. The outline of the course is as follows:

#### Therapeutics in Neurology.

Percival Bailey, M.D., Univ. of Chicago.

#### Recent Advances in Therapeutics.

O. H. Plant, M.D., Univ. of Iowa.

#### Treatment of Diseases of the Gallbladder.

Erwin R. Schmidt, M.D., Univ. of Wis.

#### Diagnosis and Treatment of Common Skin Disorders.

H. E. Michelson, M.D., Univ. of Minn.

#### Irradiation Therapy.

K. W. Stenstrom, M.D., Univ. of Minn.

#### Treatment of Infections of the Genito-Urinary Tract.

C. D. Creevy, M.D., Univ. of Minn.

#### Modern Treatment of Anemia.

Cecil J. Watson, M.D., Univ. of Minn.

#### Treatment of Gastro-intestinal Disorders.

Walter L. Palmer, M.D., Univ. of Chicago.

Tentative plans are being made to present a similar course at Sheldon, and to conduct laboratory courses at Creston, Oskaloosa, and either Fairfield or Burlington. As soon as definite arrangements are completed, a summary will be published in the JOURNAL.

### RADIO SCHEDULE

WOI Wednesdays at 4:30 p. m.

WSUI Mondays at 8:00 p. m.

Jan. 8—The Greatest Obstacle in Medicine and How It Was Overcome.

M. E. Barnes, M.D.

Jan. 15—Avoid That Cold.

Gordon F. Harkness, M.D.

Jan. 22—Care of Crippled Children.

Arthur Steindler, M.D.

Jan. 29—Early Danger Signals of Heart Disease.

E. L. Wurtzer, M.D.

Feb. 5—Cancer Control.

Joseph B. Priestley, M.D.



# WOMAN'S AUXILIARY NEWS

*Edited by the Press and Publicity Committee*

MRS. DEAN W. HARMAN, *Chairman*, Glenwood, Iowa

## THIRD ANNUAL HEALTH ESSAY CONTEST

The purpose of the sponsors of this contest is to aid in promoting a nation-wide program of health education and to stimulate interest in this important subject among the high school students of our state.

Rules of the contest are as follows:

Subject: Immunization Against Disease—A Gift of Science to Mankind.

Length of essay—Not to exceed 1,200 words.

Participants: Any high school student in Iowa.

Prizes: First prize, \$20; second prize, \$10; third prize, \$5; and twenty \$1 prizes to the next twenty highest ranking essays. The Speakers Bureau is co-operating in this contest and offers an additional prize to the winner of first place of a trip to a centrally located broadcasting station to present the winning essay over the radio. The school whose essay wins first place will be presented with a four volume set of "The Science of Life," by H. G. Wells, and a year's subscription to *Hygeia*, the health magazine. Schools whose essays win second and third places will receive a one year's subscription to *Hygeia*.

Time: The contest opened November 15, 1935, and will close March 1, 1936. This means that all essays must be in the hands of the Chairman of the Contest Committee, Mrs. W. A. Seidler, Jamaica, Iowa, by March 1, 1936.

Elimination: The four best essays from each school may be submitted. These essays should be typewritten, double spaced. Student's name should not appear anywhere on the essay, but the student's name, town, county, grade, and superintendent's name should be typed on a small piece of paper and clipped to the essay. Each essay received at the contest office will be given a number and no judge shall know to which student that number has been assigned.

Judges: Preliminary elimination will be made by members of the Woman's Auxiliary. The final judges will be:

1. A member of the State Department of Public Instruction.
2. A member of the State Department of Health.
3. A member of the Iowa State Medical Society.
4. Two members of the Woman's Auxiliary to the Iowa State Medical Society.

The decision of the judges is to be final. No essays are to be returned to their authors.

Basis for Judging Essays: Originality, composi-

tion, evidence of study. (Direct quotation must be indicated.)

Announcement of the winners will be made on March 16, 1936. For further information the student should confer with the superintendent or English teacher, or write to Mrs. W. A. Seidler, Jamaica, Iowa. Sources for material will be supplied schools.

We believe the knowledge gained through participation in this contest will make the students realize the value of preventive measures in health protection, and will aid the schools and individuals in setting up higher standards of health.

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## NEWS

Will Auxiliaries please send reports of your meetings and activities to your State Chairman of Press and Publicity, Mrs. Dean W. Harman, Glenwood, Iowa?

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## NEW AUXILIARY ORGANIZED

At the semi-annual meeting of the Northwest Iowa Medical Society held recently at Sheldon, the wives of the doctors organized an auxiliary to the society. Mrs. Frank Winkler of Sibley was elected president, Mrs. Judd Myers of Sheldon, vice president, and Mrs. A. P. Stewart of Inwood, secretary. Mrs. M. C. Hennessy, president of the State Woman's Auxiliary, was a guest and gave a very inspiring address to the newly organized Auxiliary. The Medical Society and Auxiliary will meet again in April.

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## Jackson County

The Woman's Auxiliary to the Jackson County Medical Society met in November at the home of Mrs. E. A. Hanske in Bellevue. The following officers were elected: President, Mrs. E. A. Hanske; vice president, Mrs. J. W. Jordan of Maquoketa; and secretary and treasurer, Mrs. E. L. Lampe, of Bellevue. After the program in the State Park lunch room, the physicians joined their wives in the Hanske home where lunch was served.

## SOCIETY PROCEEDINGS

### Appanoose County Annual Meeting

The Appanoose County Medical Society held its annual business meeting and election of officers December 10, at Centerville, with the following results: Dr. N. W. Labagh of Mystic, president; Dr. W. L. Downing of Moulton, vice president; Dr. E. A. Larsen of Centerville, secretary and treasurer; and Dr. J. C. Donahue of Centerville, delegate. A feature of the evening's program was an address by Smith A. Spilman, M.D., of Ottumwa. He spoke on the changing order of practice, as he has experienced it during his fifty-six years of medical practice.

### Black Hawk County Annual Meeting

Dr. F. R. Cutler of Cedar Falls, assumed the presidency of the Black Hawk County Medical Society, at a meeting held in Waterloo, Tuesday, December 17, having been named president-elect at the annual meeting last year. Officers selected at this meeting include: Dr. Wade O. Preece, president-elect; Dr. F. H. Reuling, vice president; Dr. C. N. Cooper, secretary; Dr. G. C. Murphy, treasurer; Dr. J. E. Brinkman, delegate; and Dr. E. E. Magee, alternate delegate. All officers are of Waterloo.

### Boone County Annual Meeting

Wednesday, December 11, members of the Boone County Medical Society met for a noon luncheon and election of officers for the ensuing year. Results are: Dr. Ross E. Gunn of Boone, president; Dr. R. A. Gamble of Madrid, vice president; and Dr. B. T. Whitaker of Boone, secretary and treasurer.

### Bremer County Annual Meeting

The regular annual business meeting of the Bremer County Medical Society was held Thursday, December 5, in Waverly. After a six o'clock dinner, the election of officers was held, resulting as follows: Dr. M. N. Gernsey of Waverly, president; Dr. Paul J. Amlie of Tripoli, vice president; Dr. F. R. Sparks of Waverly, secretary and treasurer; Dr. L. C. Kern of Waverly, delegate; and Dr. Sparks, alternate delegate. Since the meeting was a combined one with the First Councilor District, Dr. Felix A. Hennessy, councilor, introduced the speakers on the scientific program: Walter L. Bierring, M.D., who discussed The Economics of Disease Prevention; Carl F. Jordan, M.D., who gave a talk on Consideration of Epidemiology; Joseph H. Kinnaman, M.D., who demonstrated the newer methods of vaccination, illustrating with motion pictures the Schick and Dick tests; and Frederick J. Swift, M.D., who presented an illus-

trated lecture on The Present Status of Immunization in Iowa. Closing remarks were made by Dr. Bierring, after which the meeting was thrown open for questions and general discussion. It was a very interesting and instructive meeting.

F. R. Sparks, M.D., Secretary

### Buchanan County Annual Meeting

The Buchanan County Medical Society was host to physicians from several surrounding counties at a meeting held in Independence, Thursday, December 19, when members of the Iowa State Department of Health presented the following scientific program: The Economics of Disease Prevention, Walter L. Bierring, M.D.; Consideration of Epidemiology, Carl F. Jordan, M.D.; The Present Status of Immunization in Iowa, Frederick J. Swift, M.D.; and The Multiple Pressure Method of Vaccination, with motion pictures illustrating the Schick and Dick tests, Joseph H. Kinnaman, M.D. Results of the annual election are: Dr. J. W. Donnell of Hazelton, president; Dr. P. J. Leehey of Independence, vice president; Dr. N. L. Hersey of Independence, secretary and treasurer; and Dr. H. A. Householder of Winthrop, delegate.

### Buena Vista County Annual Meeting

The Buena Vista County Medical Society met in regular session at the Bradford Hotel in Storm Lake, Tuesday, December 10, following a seven o'clock dinner. After consideration of a rather voluminous amount of routine matters, the following officers were elected for the year 1936: Dr. C. A. A. Werner of Albert City, president; Dr. W. C. Porath of Storm Lake, vice president; and Dr. T. R. Campbell of Sioux Rapids, secretary and treasurer.

T. R. Campbell, M.D., Secretary

### Butler County

At the last regular meeting of the Butler County Medical Society held December 10, the following members were appointed to represent the county at the next meeting of the House of Delegates: Dr. Bruce Ensley of Shell Rock, delegate; and Dr. John G. Evans of New Hartford, alternate delegate.

Roger A. James, M.D., Secretary

### Calhoun County Annual Meeting

Officers elected at the annual meeting of the Calhoun County Medical Society held Tuesday, December 17, in Rockwell City are: Dr. R. G. Hinrichs of Manson, president; Dr. C. T. Farlow of Farnhamville, vice president; Dr. H. G. Fields of Lake City, secretary and treasurer; Dr. P. W. Van Metre of



Rockwell City, delegate; and Dr. W. C. Kennedy of Somers, alternate delegate.

#### Carroll County Annual Meeting

After a six-thirty dinner, held in the St. Anthony Hospital in Carroll, Wednesday, December 18, the following officers were elected to serve the Carroll County Medical Society during 1936: Dr. O. P. Morganthaler of Templeton, president; Dr. A. F. Smith of Manning, vice president; Dr. R. B. Morrison of Carroll, secretary and treasurer; and Dr. Morganthaler, delegate.

#### Cerro Gordo County Annual Meeting

Dr. H. D. Fallows was named president of the Cerro Gordo County Medical Society at the regular business meeting held in Mason City, Tuesday, December 10. Other officers elected are: Dr. C. E. Dakin, vice president; Dr. Harold W. Morgan, secretary and treasurer; Dr. E. L. Wurtzer, delegate; and Dr. George M. Crabb, alternate delegate. Dr. Wurtzer is of Clear Lake, all other officers of Mason City.

#### Davis County Annual Meeting

The Davis County Medical Society met in Bloomfield, Wednesday, December 11, for the annual election of officers. Dr. J. G. Stone of Bloomfield was named president; Dr. W. W. Parker of Floris, vice president; Dr. H. C. Young, secretary and treasurer; Dr. C. H. Cronk of Bloomfield, delegate; and Dr. G. W. Gilfillan of Pulaski, alternate delegate.

#### Dickinson-Emmet Societies

The Dickinson-Emmet Medical Societies met at the Hotel Antlers in Spirit Lake, Thursday, November 21, for a dinner and program. Carl O. Rice, M.D., of Minneapolis, addressed the group on The Injection Treatment of Hernias.

Ruth F. Wolcott, M.D., Secretary

#### Dubuque County Annual Meeting

At the annual meeting of the Dubuque County Medical Society, the following officers were elected for the ensuing year: Dr. H. M. Pahlas, president; Dr. H. B. Hibbe, first vice president; Dr. E. F. Mueller of Dyersville, second vice president; Dr. A. C. Pfohl, secretary; Dr. F. W. Meyers, treasurer; Dr. F. P. McNamara, delegate; and Dr. L. H. Fritz, alternate delegate.

D. F. Ward, M.D., Secretary

#### Greene County Annual Meeting

The Greene County Medical Society celebrated "One Hundred and Fifty-two Years of Medical Practice," Thursday evening, December 19, at the Woman's Club in Jefferson, with W. M. Young, M.D., of Jefferson; B. C. Hamilton, Sr., M.D., of Jefferson; and John Henry Shipley, M.D., of Rippey, as guests of

honor. The program was as follows: An Illustrated Lecture—Through Old Mexico, Clyde Slininger of Jefferson; The Activities of the Iowa State Medical Society, Thomas A. Burcham, M.D., of Des Moines; and Organized Medicine, Robert L. Parker, M.D., of Des Moines. Officers elected at the business meeting are: Dr. G. W. Franklin of Jefferson, president; Dr. I. S. Buzard of Jefferson, vice president; Dr. John R. Black of Jefferson, secretary and treasurer; Dr. Franklin, delegate; and Dr. F. C. Cartwright of Grand Junction, alternate delegate.

Ben C. Hamilton, Jr., M.D., Secretary

#### Hancock-Winnebago Annual Meeting

Officers elected at the annual business meeting of the Hancock-Winnebago Medical Society, held in Garner, Wednesday, December 18, are as follows: Dr. David F. Shaw of Britt, president; Dr. C. V. Hamilton of Garner, vice president; Dr. W. F. Missman of Klemme, secretary and treasurer; Dr. T. J. Irish of Forest City, delegate; and Dr. A. J. Peterson of Forest City, alternate delegate. By unanimous vote the society went on record as favoring the continuation of district scientific meetings.

W. F. Missman, M.D., Secretary

#### Henry County Annual Meeting

The Henry County Medical Society elected officers at an annual meeting held in Mt. Pleasant, Tuesday, December 31, as follows: Dr. J. T. McConaughy of Mt. Pleasant, president; Dr. B. D. Hartley of Salem, vice president; Dr. S. W. Huston of Mt. Pleasant, secretary and treasurer; and Dr. E. J. Lessenger of New London, delegate.

#### Iowa County Annual Meeting

George Scanlon, M.D., of Iowa City, furnished the scientific program for the Iowa County Medical Society, when that organization met in Marengo, Thursday, December 5. Dr. Scanlon spoke on The Latest Method of Healing Fracture of the Hip and Thigh, illustrating his talk with motion pictures. Clyde A. Boice, M.D., of Washington, was also a guest speaker of the occasion, speaking on legislative matters. Officers elected at the business meeting are: Dr. C. F. Watts of Williamsburg, president; Dr. Thomas D. Clark of Victor, vice president; Dr. I. J. Sinn of Williamsburg, secretary and treasurer; Dr. E. L. Hollis of Marengo, delegate; and Dr. Henry G. Moershel of Homestead, alternate delegate.

#### Jackson County Annual Meeting

Officers elected at the annual business meeting of the Jackson County Medical Society, held in Maquoketa, Friday, December 20, are: Dr. E. A. Hanske of Bellevue, president; Dr. F. L. Griffin of Baldwin, vice president; Dr. William Lowder of Maquoketa, secretary and treasurer; and Dr. George C. Ryan, delegate. Two Cedar Rapids physicians furnished the scientific program for the group, James Stuart

McQuiston, M.D., speaking on Gait and Movement Disorders; and William E. Brown, M.D., discussing the Use of the Obstetrical Forcep.

#### Jasper County Annual Meeting

Dr. L. E. Fellows of Newton was named president of the Jasper County Medical Society at the annual election held Tuesday, December 3. Other officers include: Dr. R. S. McLaughlin of Monroe, vice president; Dr. R. F. Frech of Newton, secretary and treasurer; and Dr. S. E. Hinshaw of Newton, alternate delegate.

#### Jefferson County Annual Meeting

The Jefferson County Medical Society held its annual election of officers, Friday, December 13, with the following results: Dr. L. D. James of Fairfield, president; Dr. H. E. Graber of Fairfield, vice president; Dr. Ludwig Gittler of Fairfield, secretary and treasurer; and Dr. G. L. Prentice of Packwood, delegate.

#### Johnson County Annual Meeting

Members of Johnson County Medical Society chose the following officers to head their group during 1936, at a meeting held in Iowa City, Wednesday, December 4: Dr. Horace M. Korn, president; Dr. I. A. Rankin, vice president; Dr. W. M. Fowler, secretary and treasurer; Dr. Ewen M. MacEwen and George C. Albright, delegates; and Dr. Harry R. Jenkinson and Dr. Milford E. Barnes, alternate delegates. For the scientific program, George H. Scanlon, M.D., spoke on The Roger Anderson Method of Treating Fractures of the Femur, and Arthur Steindler, M.D., discussed The Relation of Trauma to Diseases of the Spine.

#### Lee County Annual Meeting

The regular meeting of the Lee County Medical Society was held at the Hotel Anthes in Fort Madison, Wednesday, December 18. Four members of the faculty of Northwestern University, Chicago, furnished the following program: Medical Aspects of Diseases of the Colon, Arthur Atchison, M.D.; Surgical Aspects of Diseases of the Colon, John A. Wolfer, M.D.; Leukorrhea, George H. Gardenier, M.D.; and Diagnosis, Treatment and Complications, J. Relph, M.D. Officers elected at the annual business session include: Dr. Val T. Doering of Fort Madison, president; Dr. Jesse Saar of Donnellson, vice president; and Dr. Blinn Dorsey of Keokuk, secretary and treasurer.

#### Lyon County Annual Meeting

The Lyon County Medical Society met in Rock Rapids, Thursday, December 5. A full attendance of members was present. Frank P. Winkler, M.D., of Sibley, was our guest, and he spoke on The Relation of the Social Security Act to the Practice of

Medicine and Surgery. Since this was our annual business meeting, the following officers were appointed to serve during 1936: Dr. S. E. Blair of Alford, president; Dr. F. B. O'Leary of George, vice president; Dr. Knute Sporre of Rock Rapids, secretary and treasurer; Dr. Sporre, delegate; and Dr. A. P. Stewart of Inwood, alternate delegate.

A. P. Stewart, M.D., Secretary

#### Marion County Annual Meeting

Members of the Marion County Medical Society met Thursday, December 26, for their annual dinner and election of officers. Those chosen for 1936 include Dr. H. C. Vander Muelen of Pella, president; Dr. F. M. Roberts of Knoxville, vice president; Dr. J. Robert Wright of Knoxville, secretary and treasurer; Dr. Roberts, delegate; and Dr. H. L. Bridgeman of Knoxville, alternate delegate.

#### Marshall County Annual Meeting

Newly elected officers of the Marshall County Medical Society are: Dr. G. E. Hermence of Marshalltown, president; Dr. B. M. Biersborn of State Center, vice president; and Dr. Rodney C. Wells of Marshalltown, secretary and treasurer.

#### Mills County Annual Meeting

At a meeting of the Mills County Medical Society held in Glenwood Thursday, December 5, the following officers were named to serve during 1936: Dr. D. W. Harman of Glenwood, president; Dr. M. S. Campbell of Malvern, vice president; and Dr. Ward A. DeYoung of Glenwood, secretary and treasurer.

#### Muscatine County Annual Meeting

Dr. V. O. Muench of Nichols was named president of the Muscatine County Medical Society, at the recent election of that organization, held in Muscatine, Friday, December 6. Other officers are: Dr. A. L. Bryan, vice president; Dr. R. M. Arey, secretary and treasurer; Dr. L. C. Howe, delegate; and Dr. T. I. Wigim, alternate delegate.

#### Palo Alto County Annual Meeting

The Palo Alto County Medical Society met at the Hotel Kermore in Emmetsburg, Wednesday, December 18. A business meeting was held after the sixty-third dinner. The society went on record as favoring a new hospital for Palo Alto County, and resolutions to that effect were sent to the Palo Alto Hospital Association. Officers elected for the ensuing year are: Dr. Harold L. Brereton, president; Dr. Frank X. Cretzmeyer, vice president; and Dr. H. R. Powers, secretary and treasurer, all of Emmetsburg. Dr. Cretzmeyer then presented several movie films of medical and surgical subjects. The movie projector used at the meeting was one recently purchased by the society.



### Pottawattamie County Annual Meeting

The annual election of officers held by the Pottawattamie County Medical Society, Tuesday, December 10, at the Hotel Chieftain in Council Bluffs, resulted as follows: Dr. S. D. Maiden, president; Dr. V. D. French of Carson, vice president; Dr. Fred Beaumont, secretary and treasurer; Dr. F. Earl Bellinger, delegate; and Dr. Gerald V. Caughlan, alternate delegate. The following scientific program was presented: Sub-diaphragmatic Abscess, Dewey Bisgard, M.D., discussion by Arnold L. Jensen, M.D.; and Mercuric Chloride Poisoning, C. Edward Thompson, M.D., discussion by Raymond M. Rice, M.D.

### Poweshiek County Annual Meeting

Dr. J. L. Taylor of Montezuma was named president of the Poweshiek County Medical Society at its annual election held in Grinnell, Tuesday, December 3. Other officers are: Dr. C. W. Howell of Grinnell, vice president; Dr. F. E. Simeral of Brooklyn, secretary; and Dr. J. T. Padgham of Grinnell, treasurer.

### Sioux County Annual Meeting

Officers elected by the Sioux County Medical Society to serve during 1936 include: Dr. S. B. dePree of Sioux Center, president; and Dr. R. W. Cooper of Alton, secretary and treasurer.

### Story County Annual Meeting

The Story County Medical Society met for its annual election of officers, Tuesday, December 3, and named the following: Dr. W. B. Sperow of Nevada, president; Dr. J. F. Edwards of Ames, vice president; Dr. E. B. Bush of Ames, secretary and treasurer; and Dr. Bush Houston of Nevada, delegate.

### Tama County Annual Meeting

The annual meeting of the Tama County Medical Society was held in Toledo, Friday, December 27, and officers elected as follows: Dr. George Meyer of Gladbrook, president; Dr. A. J. Wentzien of Tama, vice president; and Dr. A. A. Crabbe of Traer, secretary and treasurer.

### Wapello County Annual Meeting

Newly elected officers of the Wapello County Medical Society are: Dr. J. E. Traister of Eddyville, president; Dr. D. O. Bovenmeyer of Ottumwa, vice president; Dr. D. J. Keating of Ottumwa, secretary and treasurer; Dr. H. W. Vinson of Ottumwa, delegate; and Dr. E. B. Howell of Ottumwa, alternate delegate.

### Washington County Annual Meeting

The Washington County Medical Society held its annual business meeting and election of officers, Tuesday, December 17, in the Congress Hotel in Washington, following a six-thirty dinner. B. J. Dierker, M.D., of Fort Madison, gave the address of the evening on Breast Tumors, which was very instructive and enjoyed by all present. Officers for

1936 are: Dr. E. D. Miller of Wellman, president; Dr. A. Keith Droz of Washington, vice president; Dr. W. S. Kyle of Washington, secretary and treasurer; Dr. W. L. Alcorn of Washington, delegate; and Dr. E. E. Stutsman of Washington, alternate delegate.

W. S. Kyle, M.D., Secretary

### Webster County Annual Meeting

At a meeting held Friday, December 20, the following officers, all of Fort Dodge, were elected to serve the Webster County Medical Society during 1936: Dr. J. C. Shrader, president; Dr. A. A. Schultz, vice president; Dr. William R. Turner, secretary and treasurer; Dr. J. H. Bruce, delegate; and Dr. Otto Glesne, alternate delegate.

W. R. Turner, M.D., Secretary

### Winneshiek County Annual Meeting

Dr. J. J. Daly of Decorah, was chosen president of the Winneshiek County Medical Society, at the annual election held in Decorah, Tuesday, December 10. Other officers are: Dr. V. J. Horton of Calmar, vice president; Dr. L. J. Hospodarsky of Ridgeway, secretary and treasurer; Dr. Daly, delegate; and Dr. J. G. Goggin of Ossian, alternate delegate.

### Iowa and Illinois Central District Medical Association

The regular quarterly meeting of the Iowa and Illinois Central District Medical Association was held Thursday, January 9, at the Blackhawk Hotel in Davenport. The meeting was preceded by a six-thirty dinner, during which time motion pictures on Surgery of the Extremities were shown. Charles A. Elliott, M.D., professor of internal medicine at Northwestern University, College of Medicine, Chicago, addressed the group on The Management of Edema. I. Vandermyde, M.D., of Prophetstown, Illinois, presented a paper on Migraine, and C. P. Phillips, M.D., of Muscatine, Iowa, demonstrated a clinical case of this condition.

James Dunn, M.D., Secretary

### Iowa Urological Society

Dr. G. D. Jenkins of Burlington was named president of the Iowa Urological Society at its annual meeting held in Council Bluffs, Saturday, December 14; and Dr. L. E. Pierson of Sioux City was elected secretary and treasurer.

### Southwest Iowa Postgraduate Medical Society

The Southwest Iowa Postgraduate Medical Society held its annual meeting Monday, December 9, at Red Oak. Walter L. Bierring, M.D., and his staff from the State Department of Health, presented their symposium on immunization and preventive medicine. Officers elected for the year include: Dr. R. A. Becker of Atlantic, president; and Dr. Agnes Wilder, also of Atlantic, secretary and treasurer.

### Tri-County Medical Society

Newly elected officers of the Tri-County Medical Society, named at the annual meeting of that organization held in Fairfield, Thursday, November 14, include: Dr. O. A. Geeseka of Mt. Pleasant, president; Dr. H. E. Graber of Fairfield, vice president; and Dr. H. F. Masson of Washington, secretary and treasurer.

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### PERSONAL MENTION

Dr. C. W. Ellyson of Waterloo, announces the association of his son, Dr. Craig D. Ellyson, in the practice of general medicine, surgery, and obstetrics, with offices located at 509 First National Bank Building. Dr. Craig Ellyson was graduated in 1933 from the State University of Iowa, College of Medicine, and interned in the hospitals for the tuberculous at Colorado Springs, Colorado, and Oakdale, Iowa. He later spent two years at Augustana Hospital, Chicago, the second year being devoted to surgical training.

Dr. Leo L. Wilson, after practicing seven years at Danbury, has located in Sioux City, with offices in the Badgerow Building.

Dr. Felix A. Hennessy of Calmar, spoke before the Waukon Kiwanis Club, Monday, December 16, on "Vocations and Avocations."

Dr. A. H. Barker, after forty years of practice in Brooklyn, has retired from active practice, and moved to Atlanta, Georgia, where he will make his home with his daughter.

Dr. O. C. Hardwig, who was graduated from the State University of Iowa, College of Medicine, has associated himself with Drs. W. A. Rohlf and H. W. Rathe of Waverly. Dr. Hardwig has been interning at the City Hospital in Cleveland, Ohio, since his graduation, and specializing in general surgery.

Dr. Wayne B. Brown of the state hospital staff at Mt. Pleasant, moved to Woodward, January 1, where he has accepted a position as assistant superintendent in the State Hospital for Epileptics and School for Feeble-minded.

Dr. William E. Ash of Council Bluffs, was guest speaker for the Glenwood Woman's Club, Monday, November 18. Dr. Ash spoke on "Mental Hygiene."

Dr. Leon Galinsky has discontinued his practice of medicine in Sioux City, to accept a position as resident physician in Seaview Hospital, Staten Island, New York.

Dr. F. Craig Johnson will assist Dr. G. H. Swearingen in the practice of medicine at Sac City this winter. Dr. Johnson was graduated from Washing-

ton University, School of Medicine, St. Louis; interned at the Methodist Hospital in Des Moines; and has just completed a year as resident physician at the Children's Hospital in Denver, Colorado.

Dr. Byron D. Hartley, who has practiced in Salem for six years, has moved his office to Mt. Pleasant.

Dr. Mark C. Wheelock, formerly on the staff of the state hospital at Cherokee, has accepted the position as assistant superintendent of the state hospital in Mt. Pleasant.

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### DEATH NOTICES

Bennett, John Charles, of Waterloo, aged thirty-two, died December 10, as the result of pneumonia. He was graduated in 1932 from Rush Medical College, Chicago, and at the time of his death was a member of the Black Hawk County Medical Society.

Devine, John Andrew, of Bancroft, aged fifty-five, died December 10, as the result of pneumonia following amputation of a leg. He was graduated in 1905 from the State University of Iowa, College of Medicine, and at the time of his death was a member of the Kossuth County Medical Society.

Devine, Winfield Scott, of Marshalltown, aged eighty-one, died December 11, as the result of heart disease. He was graduated in 1887 from the State University of Iowa, College of Medicine, and at the time of his death, was a member of the Marshall County Medical Society.

Goodale, Leon Harvey, of Nashua, aged seventy-two, died December 5, following a stroke of apoplexy. He was graduated in 1887 from the Hahnemann Medical College and Hospital, Chicago, and at the time of his death was a member of the Chickasaw County Medical Society.

Haden, Eugene Barnard, of Panora, aged sixty-nine, died suddenly December 24, as the result of heart failure. He was graduated in 1895 from the University of Nebraska, College of Medicine, Omaha, and at the time of his death was a member of the Dallas-Guthrie Medical Society.

Hotchkiss, Mary M. Nelson, of Webster City, aged sixty-two, died December 10, as the result of a paralytic stroke. She was graduated in 1904 from the Hahnemann Medical College and Hospital, and at the time of her death, was a member of the Hamilton County Medical Society.

Stephenson, Charles Norris, of Milton, aged fifty, died December 19, as the result of sinus infection and pneumonia. He was graduated in 1907 from the State University of Iowa, College of Medicine, and at the time of his death was a member of the Van Buren County Medical Society.



# HISTORY OF MEDICINE IN IOWA

*Edited by the Historical Committee*

DR. FRANK M. FULLER, Keokuk

DR. JOHN T. MCCLINTOCK, Iowa City

DR. PAUL W. VAN METRE, Rockwell City

DR. TOM B. THROCKMORTON, Des Moines

DR. WALTER L. BIERRING, Des Moines

DR. WILLIAM JEPSON, Sioux City

## History of the State Society of Iowa Medical Women\*

### Part II. From 1906 to 1935

EPPIE S. MCCREA, M.D., Eddyville

The history of the State Society of Iowa Medical Women from 1906 to the present time is based upon the existing secretary's records.

The 1906 meeting was held in Des Moines, with the following officers:

President, Dr. Evaline Peo.

First Vice President, Dr. Mary A. Coveny.

Second Vice President, Dr. Lena A. Beach.

Secretary, Dr. Lily Kinnier.

Treasurer, Dr. Sophia Hinzle Scott.

The council was composed of Drs. Jennie McCowen, Rebecca Hanna, Edith Gould Fosnes, Azuba King, Margaret Colby, Jessie V. Smith, and Mary Ardery.

The guest of the program, Dr. Root, gave a paper on Medical Women's Work in Medical Literature. This was followed by Dysmenorrhea in Young Girls, Dr. Jenny Ghrist; and Women's Influence in the Tuberculosis Campaign, Dr. Sarah Kime.

The list of members voted in at this meeting included Drs. Florence Brown Sherbon, Cleveland Coffin, Anna Jackson Seregsh, Irene Smedly, Eppie S. McCrea, and Myrtle M. Knowles.

In 1907, the annual meeting was held in Cedar Rapids, with Dr. Mary Coveny as president. Members voted into the society were Drs. Mary K. Heard, Agnes Safely, and Jane D. Wright.

Dr. Kate Mason Hogle headed the society when the organization met in Des Moines in 1908. Eighteen members were present, and the following new ones were elected: Drs. Jean Clemence, Mendenhal, Nelle Noble, Mary Jones, Jeanette Throckmorton, Rose Butterfield, Clara Haden, Julia Donahue, and Cora Negus.

The following members were present at the 1909 meeting held in Dubuque: Drs. Agnes Eichelberger, Pauline Townsend, Jenny Ghrist, Nancy M. Hill, Isabelle Elliot Cowen, Amelia Sherman, Rose E. Lowden, Lena Beach, Mary K. Heard, Jesse B. Hudson, Laura H. Bronson, Clara B. Witmore, Elizabeth Smith Kennedy, Lily Kinnier, and Georgia Stewart.

Dr. Lenna D. Meanes was president in 1910. The meeting was held in Des Moines, and the following women were received into membership: Drs. Pauline Leader, Esther Ryerson, Ida Grant, Rhodes, Grace Ferith Gerger, Bertha Allen Greer, Pearl Brown Hoeve, Amanda Shryer, Mary Counsell, Leone Morden Scruby, and Agnes Habart.

Twenty-six members met in Des Moines in 1911. New members taken in at this meeting were Drs. Sadie Doren, Davenport; Sue B. Jantz, Albia; Cora Murdock, Independence; Bertha McDavitt, Burlington; Ida M. Scott; Suzen Mc S. Snyder, Council Bluffs; Taranna G. Grothaus Dulin, Sigourney, and Bertha Van Hoosen, of Chicago, honorary member for the evening. Dr. Van Hoosen conducted a surgical clinic the following morning at the Iowa Methodist Hospital.

\*Presented before the Thirty-eighth Annual Session, State Society of Iowa Medical Women, Davenport, May 8, 1935.

Eighteen members were present in 1912 at Burlington. Visitors were: Dr. Mary Bates, Denver, Colorado; Dr. Mary McEwen, Evanston, Illinois; and Dr. Julia D. Merrill, Chicago.

The 1913 meeting was held in Des Moines, with seventeen members present. Dr. Mary McKlean talked on the study of fibroid tumors. The afternoon program ended with a reception at the home of Mrs. Waterbury.

In 1914, at Sioux City, the president, Dr. Florence Brown Sherbon, gave a review of the year's progress in preventive medicine. She very happily pictured what had been accomplished and what yet might be attained. Dr. Rosina Wistein talked on the subject of Woman Suffrage in Illinois, and also gave a talk in the evening on Sex Hygiene.

In 1915 the society met in Waterloo, and in 1916 at Davenport, the latter year with Dr. Lily Kinnier as president. Members voted in at the 1917 meeting held in Des Moines were Drs. Julia Hill and Grace Doane. Dr. Nelle Noble, president of the society, presented a paper on Urinalysis and Kidney Diagnosis. Dr. Mary K. Heard gave a paper on Eye Strain and Higher Education. Eighteen members were present.

Dr. Laura Branson, of Iowa City, was president in 1918 at which time the society met at Fort Dodge. Dr. Jeannette Throckmorton gave a talk on Congenital Deformities and Malformations. The guest of honor, Dr. Clara Seippel, of Chicago, spoke on The Delinquent Girl.

Dr. Jeannette Throckmorton of Chariton, was president in 1919. The meeting was held in Des Moines and the following new members received: Drs. Mae Habenicht, Des Moines; Grace Sawyer, Greenfield; Zenella Morris, Stockport; Luella Cleveland, Harlan, and Alice Hatch, Des Moines. Dr. Mabel Ulrich of St. Paul, Minnesota, addressed the group on Women Physicians and the New Public Health.

Meetings were held in Des Moines in 1920, 1921, and 1922. Dr. Lena A. Beach presided over the 1921 meeting which was attended by twenty-six members and the following four new members: Drs. Helen Johnston, Mary Tinley, Edna Sexsmith, and Henrietta Calhoun. Three guests by invitation were as follows: The Doctor's Responsibility to the Under Nourished Child, Amy Louis Daniels, Ph.D., Iowa City; Nutritional Problems of School Children, Fred Moore, M.D., Des Moines, and Mental Measurements in Relation to Medicine, Reuel H. Sylvester, Ph.D., Des Moines.

Attendance at the 1922 meeting, over which Dr.

Josephine Wetmore Rust presided, jumped to forty-three. New members were admitted as follows: Drs. Margaret Nelson, Des Moines; Fay Heflin, Centerville; Harriet Hamilton, Council Bluffs; Marion O'Harrow, Iowa City, and Myrtle Griffin, Manson.

In 1923, at Ottumwa, the president, Dr. Eppie S. McCrea, of Eddyville, presented an address on Efficiency in Medicine. The guest of honor, Dr. Mary Elizabeth Hanks of Chicago, spoke on The Use of X-Ray in Gynecology. Dr. Maude Taylor, of Ottumwa, was guest by invitation, and gave a talk on Acrodonia.

Meetings in 1924, 1925 and 1926 were held in Des Moines. Dr. Julia F. Hill presided in 1924; twenty-five members were present, and the guest of honor, Dr. Anna E. Blount, of Chicago, spoke on Chronic Neisserian Infections in Relation to Obstetrics.

Dr. Jane Wright was president in 1925. Dr. Zella White Stewart read a paper on Diagnosis and Treatment of Asthma and Hay Fever. The guest of honor, Dr. Sarah M. Hobson, of Chicago, gave a talk on The Deadly Sixties—A Problem of Mental Poise.

The 1927 meeting was held in Council Bluffs, and the 1928 meeting in Cedar Rapids. Dr. Mae Habenicht presided over the 1929 meeting held in Des Moines. The guest of honor was Dr. Estella G. Norman of Battle Creek, Michigan, who delivered a paper on Color Hygiene.

Marshalltown was the location chosen for the 1930 meeting of the society, with Dr. Christine Ericksen Hill of Council Bluffs, as president. Dr. Olga Stastny of Omaha, guest of honor, spoke on Medical Women of Today.

Dr. Florence Johnston of Cedar Rapids, was president when the society met in 1931 in Des Moines. Fifteen members were present.

The 1932 meeting was held in Sioux City, with Dr. Grace Sawyer of Woodward, presiding. The guest of honor, Dr. Mary Swan of Chicago, spoke on The Strategic Position in the Treatment of Syphilis.

Dr. Eleanor Hutchison of Belle Plaine, presided over the 1933 meeting which was held in Des Moines, with Dr. Della G. Drips of Rochester, as guest speaker. Dr. Drips' subject was Functional Disturbances of the Menopause.

The 1934 meeting was also held in Des Moines. Eighteen members were present. Guest of honor was Dr. Leda June Stacy of Rochester. Dr. Martha M. Link of Dubuque, spoke on The Child's Nature and the Child's Emotional Needs.

The 1935 meeting was held in Davenport, with Dr. Edna K. Sexsmith of Greenfield, presiding.



# THE JOURNAL BOOK SHELF

## BOOKS RECEIVED

**THE AMERICAN ILLUSTRATED MEDICAL DICTIONARY**—By W. A. Newman Dorland, M.D., Seventeenth edition, revised and enlarged. Octavo of 1573 pages with 945 illustrations. W. B. Saunders Company, Philadelphia and London, 1935. Price, \$7.50.

**ANNUAL REPRINTS OF THE REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR 1934**, with the comments that have appeared in *The Journal*. Press of the American Medical Association, Chicago, 1935. Price, \$1.00.

**ARTHRITIS AND RHEUMATOID CONDITIONS**—Ralph Pemberton, M.D., professor of medicine, Graduate School of Medicine, University of Pennsylvania. Second edition, thoroughly revised. Illustrated with 69 engravings. Lea & Febiger, Philadelphia, 1935. Price, \$5.00.

**THE AUTONOMIC DISEASES OR THE RHEUMATIC SYNDROME**—By T. M. Rivers, M.D. Dorrance & Company, Philadelphia. Price, \$3.00.

**CLINICAL LABORATORY METHODS AND DIAGNOSIS**—By R. B. H. Gradwohl, M.D., director of laboratories, St. Louis County Hospital. With 323 illustrations and 24 color plates. C. V. Mosby Company, St. Louis, 1935. Price, \$3.50.

**CLINICAL MANAGEMENT OF SYPHILIS**—By Alvin Russell Harnes, M.D., chief of Congenital Luetic Clinic, New York Hospital. The Macmillan Company, New York, 1935. Price, \$1.50.

**THE CRIPPLED AND THE DISABLED**—By Henry H. Kessler, M.D., Newark, New Jersey. Columbia University Press, 2960 Broadway, New York City, 1935. Price, \$4.00.

**DISEASES OF THE NERVOUS SYSTEM**—By Smith Ely Jelliffe, M.D., formerly professor of psychiatry, Fordham University, New York; and William A. White, M.D., superintendent, St. Elizabeth's Hospital, Washington, D. C. Sixth edition, 1175 pages, illustrated with 497 engravings. Lea & Febiger, Philadelphia, 1935. Price, \$9.50.

**DISEASES OF THE SKIN**—By Richard L. Sutton, M.D., professor of dermatology, University of Kansas; and Richard L. Sutton, Jr., M.D., assistant in dermatology, University of Kansas. Ninth edition, revised and enlarged, with 1310 illustrations and eleven colored plates. C. V. Mosby Company, St. Louis, 1935. Price, \$12.50.

**THE DOCTOR AND THE PUBLIC**—By James Peter Warbasse, M.D., Brooklyn, New York. Paul B. Hoeber, New York, 1935. Price, \$5.00.

**ELECTROTHERAPY AND LIGHT THERAPY**—By Richard Kovacs, M.D., clinical professor and director of physical therapy, Polyclinic Medical School and Hospital, New York. Second edition, enlarged and thoroughly revised. Octavo of 696 pages, illustrated with 263 engravings. Lea & Febiger, Philadelphia, 1935. Price, \$7.50.

**EMOTIONS AND BODILY CHANGES**—By H. Flanders Dunbar, M.D., Ph.D., departments of medicine and psychiatry, Columbia University, Columbia University Press, New York, 1935. Price, \$5.00.

**INTERNATIONAL CLINICS**—Edited by Louis Hamman, M.D., Johns Hopkins Hospital, Baltimore. Volume II, Forty-fifth Series. J. B. Lippincott Company, Philadelphia and London, 1935.

**INTERNATIONAL MEDICAL ANNUAL**—A Year Book of Treatment and Practitioner's Index. Edited by H. Letheby Tidy, M.D., and A. Rendle Short, M.D. William Wood and Company, Baltimore, 1935. Price, \$6.00.

## BOOK REVIEWS

### METHODS OF TREATMENT

By Logan Clendening, M.C., Clinical Professor of Medicine, University of Kansas. Fifth edition. C. V. Mosby Company, St. Louis, 1935. Price, \$10.00.

In the preface of this, the fifth edition of this work, the author outlines an ambitious program, stating, "This book was planned to furnish an outline of all the methods of treatment in internal medicine." Whether the author realizes upon this ambition must be left to the judgment of the individual reader. However, it is apparent that he has covered in a very thorough fashion those methods which are commonly employed and of frequent usefulness in the general practice of medicine. The first part describes each procedure under the headings of drugs, diet, hydrotherapy, etc. The second considers the application, the result to be expected, etc., under the heading of the various diseases. This plan is designed to avoid repetition. For example, in part one the author recites the action of digitalis, its dosage, its preparation, etc., while, in part two, whenever digitalis is indicated or contraindicated, the drug is cited and reference made to a more detailed description in the first part of the book. In this fashion the author systematically covers the recognized useful drugs and procedures, and in the second part reviews the treatment of those conditions ordinarily discussed in the classical textbooks of medicine. The volume is adequately illustrated and indexed and should prove of

exceptional value to every practitioner of medicine, particularly those just entering upon practice or those whose study and reading have not kept them entirely abreast of the modern thought in therapeutics.

### DISEASES OF THE NOSE AND THROAT

By Charles J. Imperatori, M.D., professor of clinical otolaryngology, New York Postgraduate Medical School, Columbia University; and Herman J. Burman, M.D., instructor of clinical otolaryngology. 480 illustrations. J. B. Lippincott Company, Philadelphia and London, 1935. Price, \$7.00.

This book is the development of the course given to matriculates at the New York Postgraduate Medical School of Columbia University and is designed to give the general practitioner and senior medical student accurate information concerning the diagnosis and treatment of diseases of the nose and throat.

In the first section of the text, due consideration is given to the examination of the patient, including those forms of special research which may support a differential diagnosis or form a basis for treatment.

The following three chapters deal with the nose, the septum and the accessory sinuses of the nose. The next three chapters deal with the nasal pharynx, the pharynx and mouth and the larynx. Then follow two sections dealing with the trachea, bronchi and lungs with especial consideration given to peroral

endoscopy. The two concluding sections deal with physical therapy and radiation and the general consideration of allergy in the general diseases of the nose and throat.

Each section of the text is designated by bold-face titles, materially facilitating the rapid search for needed material, a feature which makes the volume valuable as a reference work for the general practitioner. Treatment is stressed and sufficient minutia furnished to aid the general practitioner in the treatment of conditions local to these organs. The text is generously illustrated with half-tones and line drawings.

#### ANNUAL REPRINTS

Of the reports of the Council on Pharmacy and Chemistry of the American Medical Association for 1934, with the comments that have appeared in the *JOURNAL*. Cloth, 135 pages. American Medical Association, Chicago, 1934. Price, \$1.00.

Each succeeding volume of reports of the Council reveals more of the long and successful fight in the interest of rational therapeutics. The Council is no longer chiefly concerned with noisome proprietaries and yet this latest volume contains reports on such articles as "Vita-Cell," a secret preparation marketed with exaggerated claims, and "Raylos," a shotgun preparation marketed in a way to promote its ill advised use by the public. Most of the "unacceptable" reports in this volume are concerned with products that may have some merit but are not offered to the public in a way which experience has taught the Council is necessary before a therapeutic agent is acceptable. Illustrative of the Council's efforts to keep those concerned informed of the basis for its actions are the "Recent Revisions or Elaborations of the Council's Rules of Interest to Manufacturers and the Medical Profession," which have appeared in the last two volumes. These inform the profession of the various problems which arise and the care given to their consideration.

#### DISEASES OF THE THYROID GLAND

By Arthur E. Hertzler, M.D., professor of surgery, University of Kansas. Third edition, entirely rewritten. C. V. Mosby Company, St. Louis, 1935. Price, \$7.50.

This author reflects the viewpoint of the busy surgeon in the small community hospital. He has developed the opinion that thyroid surgery should be more thoroughly performed and that total thyroidectomy is a safer procedure in most cases than a subtotal operation. He covers the field of thyroid disease, stressing particularly the surgical approach in treatment.

Pathology of the thyroid gland is not included, since it is the author's plan to cover this subject in another volume. The technic of thyroid surgery is discussed in detail and the operative procedures illustrated by well executed line drawings. The volume is thoroughly illustrated.

#### NEW AND NONOFFICIAL REMEDIES

Containing descriptions of the articles which stand accepted by the council on pharmacy and chemistry of the American Medical Association on January 1, 1935. Cloth, 510 pages. American Medical Association, Chicago, 1935. Price, \$1.50.

In this book the Council on Pharmacy and Chemistry lists and describes the medicinal preparations that is has found acceptable for general use by the medical profession. A glance at the list of the Council members and the long list of consultants appearing in the first part of the book gives ample warrant for the authority of the Council's selections. Not only does the Council "accept" new preparations but from time to time it omits those which have been accepted but which have not with the lapse of time upheld their original promise of therapeutic merit. The list of omissions for 1934 shows that the Council has been mainly concerned in this respect with *B. acidophilus* preparations and with antiseptics. Several preparations of each class have been omitted. The list of admissions does not reveal the presence of any preparation that promises to be epoch making in the sense that insulin was, for instance. The volume continues to maintain its position as the foremost guide for physicians to those new preparations which have favorably passed the painstaking scrutiny of the Council on Pharmacy and Chemistry.

#### CLINICAL PARASITOLOGY AND TROPICAL MEDICINE

By Damaso de Rivas, B.Sc. Biol., M.S., M.D., Ph.D., professor of parasitology, Graduate School of Medicine, University of Pennsylvania; in collaboration with Carlos T. de Rivas, M.D., pathologist to the Santo Tomas Hospital, Panama. Octavo of 367 pages, illustrated with 144 engravings. Lea & Febiger, Philadelphia, 1935. Price, \$5.00.

This volume is designed to meet the requirements of the student and physician who may frequently or occasionally encounter the maladies commonly thought of as limited to tropical countries. With the increasing facilities in transportation and the ease with which large distances may be traveled, the so-called tropical diseases may appear in the practice of physicians in every climate and in every latitude.

The authors have discussed tropical diseases under four general headings.

1. Diseases caused by protozoa.
2. Diseases caused by metazoa.
3. Diseases caused by bacteria.
4. Diseases of undetermined etiology.

A concluding chapter deals with climatic diseases—animal poisons, etc. The volume is fully illustrated, indexed and contains an adequate number of references for extended reading.



### PHYSICAL DIAGNOSIS

By Warren P. Elmer, M.D., associate professor of clinical medicine, Washington University School of Medicine; and W. D. Rose, M.D., late associate professor of medicine, University of Arkansas. Seventh edition, with 342 illustrations. C. V. Mosby Company, St. Louis, 1935. Price, \$8.00.

While this volume appears as the seventh edition of Dr. Rose's classical text on physical diagnosis, it is more exactly a second edition of Dr. Elmer's treatise on this subject since the text has been largely rewritten and the original form changed to meet more nearly the present author's conception of the subject.

The scope of the work is intended to carry the student through all of the branches of physical diagnosis commonly employed in hospitals or office practice, rightly stressing the subject of chemical anatomy and physiology. With an understanding of these subjects, the author outlines those methods of observation, particularly those of inspection, palpation, percussion and auscultation, which may be employed without the benefit of mechanical diagnostic aids or laboratory.

Later in the work he expands the subject to include the mechanical aids to diagnosis, including such laboratory procedures as are commonly employed in routine diagnostic work. While devised originally for under-graduate students, the volume admirably meets the requirements of the practicing physician as a reference book on this subject, and will be gratefully received by those practitioners who wish to review this subject and improve their diagnostic ability.

### OBSTETRICAL PRACTICE

By Alfred C. Beck, M.D., professor of obstetrics and gynecology, Long Island College of Medicine. More than 1,000 illustrations. The Williams and Wilkins Company, Baltimore, 1935. Price, \$7.00.

In the preparation of a medical textbook, certain stereotypeness in presentation is the rule, since each author feels that an illustrious predecessor must have exhibited wisdom in establishing his particular form of writing. When a medical author deviates from this traditional form, he immediately commands the attention of his readers, and if his form is meritorious, he deserves especial credit.

Dr. Beck has digressed from the usual form in presenting a textbook on obstetrics which very largely employs a style entirely his own. By the aid of more than one thousand line drawings, the author has so completely illuminated his text that description is reduced to the minimum and yet the student is permitted a most exact and thorough understanding of practical obstetrics. Modern obstetric practice presupposes thorough observations of the expectant mother prior to her confinement, painstaking

and skillful management during her confinement, and prophylactic or reconstructive observation for a considerable period after her delivery. Each of these phases receives full consideration and the relative importance of each is adequately stressed.

Surgical obstetric practice receives due consideration and is made surprisingly comprehensible by the generous use of well chosen and carefully prepared drawings. Bibliographies are appended to each chapter. We believe that this work deserves more than the usual approbation. It is entirely unique, thorough and authoritative and yet presents the subject in such a clear, concise and understandable fashion that every practitioner should welcome this contribution to obstetric literature.

### LABORATORY METHODS OF THE UNITED STATES ARMY

Edited by James Stevens Simmons, M.D. Fourth edition, illustrated with engravings. Approved by the Surgeon-General of the United States Army. Lea & Febiger, Philadelphia, 1935. Price, \$6.50.

This volume has been prepared at the Army Medical School in Washington, and outlines those laboratory methods approved and recommended in this branch of the service.

It covers the field of clinical pathology, chemistry, mycology, bacteriology and hematology. This work offers a complete laboratory guide for college courses in bacteriology and will prove a valuable reference work for the medical practitioner, the bacteriologist, clinical pathologist, hygienist, sanitarian, dentist and veterinarian.

### A TEXTBOOK OF BIOCHEMISTRY

Edited by Benjamin Harrow, Ph.D., associate professor of chemistry, The City College, New York; and Carl P. Sherwin, M.D., Sc.D., Dr. P.H., LL.D., member of the staff of St. Vincent's Hospital and French Hospital, New York City. 797 pages with 52 illustrations. W. B. Saunders Company, Philadelphia and London, 1935. Price, \$6.00.

During the past decade more than usual interest has developed around the basic science of biochemistry. Much of this interest has evolved because of the tremendous strides made in the advancement of medical science through discoveries in the biochemistry of the body. No progressive physician today can keep abreast of the newer thoughts in therapy, particularly of the endocrines, the vitamins, the management of diabetes, pernicious anemia and allied conditions, without a thorough appreciation of the basic biochemical principles involved.

In the present work, written by more than a score of distinguished teachers and clinicians, the full scope of biochemistry is presented with authoritative exactness. To the physician who would know modern medicine, this volume will be a necessity.

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### DISEASES OF THE LYMPH NODES\*†

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The intact skin and mucous membranes offer the first line of resistance to bacterial invasion. Passing this barrier the invading organism is confronted by fixed and circulating cells whose reaction to the intruder has been modified by antibodies, potent factors in the general defense mechanism. Circulating phagocytes, conspicuously neutrophilic polymorphonuclear leukocytes, and to a lesser degree monocytes, afford mobile forces of offensive defense. The neutrophil is vitally important in the conflict with practically all infections, but especially in the coccal diseases. Bunting<sup>1</sup> voices the opinion that "no disease which runs its course with a neutrophile leukocytosis is followed by a lasting immunity, except scarlet fever and here another than the neutrophilic cell is apparently responsible for the immunity." The neutrophil is an end cell incapable of transmitting its properties to subsequent generations of the same order. It, furthermore, has neither antitoxic nor antitoxin-producing powers. Nature must repose these functions in other cells.

Bacteria, bacterial toxins and the products of the bodily reaction to the same, pass centripetally from the seat of invasion through the lymphatics as a rule. In their course these channels are interrupted by a series of more or less effective filters or lymph nodes. These units vary in size from a millimeter to two centimeters, and number from 500 to 600 in the body. Bunting<sup>2</sup> divides their general distribution into those of the body wall, the abdominal cavity and the thoracic cavity. The cranial cavity does not contain lymph nodes.

Without entering into too involved a discussion of the structure of the lymph node, it should be pointed out that these filters have two separate histologic and functional components. The reticuloendothelial cells possess the same powers as like tissue anywhere in the body. Phagocytosis

of foreign particles and bacteria that have penetrated the first lines of defense or for which the neutrophils lack the capacity of ingestion and digestion, is an important specific function. Monocytes may arise from these cells and in event of unusual demand the embryonal power of hematopoiesis may be restored to the reticuloendothelium of the lymph nodes. The lymphocytes are much more abundant elements of the lymph nodes (as well as the spleen). While these cells may arise in the bone marrow, the lymph nodes and the spleen are their predominant source. The lymphocytes are produced in prodigious numbers. Rous<sup>3</sup> finds that one and a half to two times as many lymphocytes enter the circulation from the thoracic duct in twenty-four hours as are present in the circulating blood at any given time. The lymphocytes therefore must disappear from the blood stream at a relatively rapid rate. Destruction may account for a portion of this loss, but a considerable factor has been defined by Bunting and Huston<sup>4</sup> in the passage of great numbers of lymphocytes into the lumen of the small intestines. Regardless of their position, whether in the lymph nodes, the spleen or in the circulating blood, lymphocytes are granted a peculiar capacity to fix toxins. In the intestinal tract they may have a digestive as well as an antitoxic function.

In general it may be concluded "if in great intensity, the toxins cause necrosis of the lymphocytes; if in proper dilution, one finds not necrosis but stimulation and proliferation, with the production of antibodies."<sup>1</sup> In contradistinction to the absence of a lasting immunity in infectious diseases attended by a neutrophil leukocytosis, Bunting<sup>5</sup> states the corollary that those diseases followed by a lasting immunity have a definite lymphocytosis at some time in their course. The explanation apparently lies in the influence of the infectious antigen upon the progenitors of the mature lymphocytes to the end that the successive crops of such cells possess the immune properties of their ancestors. Finally fibroblasts may be derived from the connective tissue framework and

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the blood vessels of the lymph node, and may serve an important part in restricting or limiting the pathologic process. The ultimate wall of fibrous connective tissue about many lymphoid lesions takes its origin from these fibroblasts.

The resistance of lymphoid tissue varies widely under conditions of age and sex.<sup>1, 2, 5, 6</sup> Lymphoid resistance increases to puberty. An apparent parallelism exists especially in the male between sexual development and this factor. Thymic activity also parallels the lymphoid resistance at this period, when the lymphocytes in the peripheral blood take their highest normal level. The resistance to such diseases as influenza, tuberculosis, typhoid fever, and Hodgkin's disease reaches its maximum in the five or six years before puberty. Immediately after puberty the resistance of lymphoid tissue falls rapidly coincident with thymic atrophy. From fifteen to thirty years of age the incidence of diseases, the chief resistance against which is the lymphocyte, reaches its peak. The male is two to three times as susceptible to diseases of the lymph nodes as is the female. Recovery of lymphoid resistance occurs after the age of thirty years. With very little deviation the morbidity and mortality for the above cited diseases follow this curve of lymphoid resistance and susceptibility. In the final analysis, "The number of lymphocytes in the circulation and tissues is a measure of resistance to the toxin of the infection."<sup>6</sup>

Diseases may affect the lymph nodes incidentally, predominantly or exclusively. There may be involvement of regional or draining nodes in local infectious or neoplastic processes. The local lymphadenopathy may be succeeded by a lesser degree of participation of the more remote nodes. A general lymphadenopathy usually with hepatomegaly and splenomegaly presupposes the operation of a general lymphotoxin, or a disproportionate or uncontrolled lymphopoiesis in response to a known or unknown stimulus. Held and Goldbloom<sup>7</sup> among others have suggested a separate or disproportionate representation of the two histologic elements of the lymph node in the different diseases involving them. Such is doubtless the case but overlapping within the same disease in different individuals or in the same patient at different times, militates against its general clinical applicability. The density of the involved lymph nodes depends upon a number of factors, important among which are the firmness and tension of the capsule, the nature of the contained cells and the degree of fibrosis within the node. Fluctuation occurs in the presence of liquefaction, necrosis and suppuration. Capsular invasion in the inflammatory or neoplastic involvement of the

lymph nodes accounts for periadenal adhesions that in turn may lead to fixation to the surrounding nodes, the skin and the subjacent structures.

Aside from the clinical course and the cited local or general changes in the lymphatic system, a number of laboratory aids may be invoked in the diagnosis and the differential diagnosis of diseases of the lymph nodes. In this direction thought is first directed to the blood picture. The lymphoid reaction or paralysis will give invaluable evidence not only in diagnosis but also in prognosis. With coincident marrow depression, depletion or replacement, may be anticipated anemia, neutropenia and thrombocytopenia. Special studies, as the sedimentation speed and determination of the heterophile antibody content of the serum,<sup>8</sup> may ultimately find their places in the routine investigation of these disorders. Basal metabolism determinations have a prognostic significance in certain diseases of this group; or indeed, if there be a leukopenia, they may be a measure of diagnostic value. Roentgenographic studies of any deep zone of suspected lymphoid involvement are frequently illuminating. Importantly these may include the thorax, the gastro-intestinal and genito-urinary tracts, and the skeletal system, but even the cranio-spinal cavity may require investigation. Lastly the laboratory aid of widest application and usefulness is the biopsy. Where any reasonable doubt as to diagnosis exists after the clinical study and the customary laboratory work, recourse should be had to the removal and microscopic study of a characteristic lymph node. Jackson<sup>9</sup> writes, "But biopsy is, so far as I know, the only sure way of making a correct diagnosis and a correct diagnosis is of prime importance in making a prognosis and in giving treatment." In another connection<sup>10</sup> he cautioned against incision of a node, advising excision. A further word of caution may appear trite. It is nevertheless important. In the desire to avoid unnecessary trauma and dissection, too frequently improper and undiagnostic tissues are submitted to the pathologist for study. Too much attention cannot be paid to the detail of the election of the proper site and tissue for biopsy.\*

Obviously the subject of lymph node diseases is entirely too broad for detailed discussion. Accordingly attention is herewith directed to a series of diseases with a predominant or exclusive lymphoid expression. Tuberculosis is used as a type of infectious disease in which the resistance

\* The Gordon test (Rose's Research on Lymphadenoma, John Wright and Son, London, 1932, p. 9) has been offered as a diagnostic aid; but its larger significance is the suggested approach to the etiology of Hodgkin's disease. The first step in its performance is the excision of an involved lymph node. Thereafter microscopy offers much more exact information than the neurologic changes incident to the intracerebral and intravenous injection of the macerated node into rabbits.

is largely by means of the lymphocytes. Incidentally the lymph nodes may bear the burden of the fight against the invasion of certain tubercle bacilli that, by inference from the decrease concurrent with the control of tuberculosis in cattle, are held by some to be of the bovine type. The order of involvement is either regional to the portal of entry, or generalized as a constitutional response to the lymphotoxin, or occasionally to the widespread invasion of the tubercle bacilli themselves. With the exception of the remarkable peak in the first year of life, the age and sex incidence follow the curves of lymphoid resistance and susceptibility suggested by Bunting.<sup>1, 2, 6</sup> Scrofula of the past generations, tuberculous cervical adenitis, may be taken as a type. The tonsils or the oropharynx serve as the portals of entry in this localization. Other points of entry will, of course, lead to different sites of regional lymphadenopathy. The clinical course is marked by the classical constitutional symptoms of tuberculosis, viz., fever, night sweats, weight loss, fatigue, tachycardia, anorexia and vague gastro-intestinal symptoms. The involved cervical nodes take the peculiar conformation of an inverted pyramid.<sup>11</sup> The largest nodes are at the angle of the jaw and taper off to the base of the neck where the smallest appear. These nodes are firm, but not hard. Fusion may occur between the respective nodes of the group, and adhesions between the nodes and the overlying skin and the underlying tissues are the rule. Inflammatory edema of the overlying subcutaneous tissues and the skin may be expected. Dimpling of the skin is common at the site of adhesions. Tenderness over the actively inflamed node prevails. Fluctuation may develop in the presence of liquefaction, and sluggish, persistent sinuses appear spontaneously or after incision of such disintegrated nodes. The Mantoux test will be helpful in the proof or the exclusion of tuberculosis at the age of predilection for lymphadenitis. If the resistance is high, lymphocytosis is the rule. In the presence of suppuration the lymphocytes fall and the neutrophils and monocytes rise.<sup>12</sup> Characteristic is the low eosinophil count in tuberculosis. The sedimentation rate offers indirect but valuable information relative to the course of the process. With increased activity the speed of sedimentation of the erythrocytes is increased, while with improved resistance this rate is slowed. Roentgenograms of the cervical region may show mulberry-like calcified lymph nodes, at times in chains. The chest should be examined roentgenologically in all subjects with tuberculous adenitis. Where the lymphadenopathy is general, the biopsy must be resorted to for the definition of the etio-

logy; for this type of tuberculous lymphadenitis is singularly lacking in all of the typical local details above outlined.

Ewing<sup>13</sup> has stated that "tuberculosis follows Hodgkin's disease like a shadow." Three lymph node diseases, Hodgkin's disease, lymphocytic leukemia and lymphosarcoma, are properly considered together. Indeed, Bunting and Yates<sup>14</sup> query, "If the same effort which has been applied to the separation of the members of the group had been applied in an attempt to bring them together, would it not have increased our understanding of them? In other words, are not their resemblances greater than their differences?" They point out the regularity of a primary focal infection, progressive lymphadenopathy with or without extranodal tumors, chronic septic course, fatal termination in two to five years, characteristic blood picture even when not leukemic, primary lesion in the germinal centers of the lymph nodes leading to an early loss of architecture, and finally the constant occurrence of diphtheroid organisms in these lesions. Then, too, transitions between two component members of the group are occasionally reported. Bunting<sup>5</sup> divides these proliferative lesions thus:

1. Aleukemic leukemia (pseudo-leukemia): Retention of the cells within the capsule of the node, so that very little change occurs in the peripheral blood picture.
2. Chronic lymphocytic leukemia: In addition to the lymph node proliferation the cells may get into the circulation. Coincident bone marrow involvement serves as a distinguishing detail in necropsy studies.
3. Lymphosarcoma: An invasive growth in which the capsule of the lymph node is traversed and the surrounding tissues infiltrated by the lymphocytes.
4. Metastasizing aleukemia: The lymphocytes enter the blood stream in large numbers but soon leave the circulation and pass into other tissues, especially the adipose tissues. The blood picture presents a slight lymphocytosis.

The theories relative to the etiology and pathogenesis of the several diseases of this group cannot be discussed here in detail. Suffice it to say that although the infectious theory of the origin of Hodgkin's disease holds sway in some quarters, there is no unanimity as to the specific agent. The responsibility of the *Corynebacterium Hodgkini* advanced by Bunting and Yates<sup>15</sup> is not generally admitted. Medlar<sup>16</sup> has recently suggested that Hodgkin's disease is a "pleomorphic aggregation of cells which represent the developmental cycle of the megakaryocyte." He offers the suggestive term, megakaryoblastoma.



The clinical picture of Hodgkin's disease offers many variations. The male sex is affected two to three times as commonly as the female. Typically it is an affection of the age period from fifteen to thirty years for the male and somewhat older for the female. The curve is marked by a slight peak between five and ten years of age, then a fall in the next five years and a sustained climb from fifteen to thirty years with a fall toward the end of this period. As stated, the peak for the female occurs later than that for the male, 42 per cent of the cases among women occurring after the thirtieth year as compared with 27 per cent among men. A slight accession appears in the female



Fig. 1. Photograph of patient with Hodgkin's disease, demonstrating the pyramidal configuration of cervical nodes.

incidence at the menopause.<sup>2</sup> The local manifestations differ naturally with the predominance of the lesion. If the accessible groups of lymph nodes be preponderantly involved, the diagnostic problem may be lightened. Typically progressive, painless enlargement of a group of nodes is the order. If in the cervical region, one side is first enlarged and then the contralateral side may be affected. The involved nodes present a characteristic cartilaginous resistance that may become more firm with advancing fibrosis. Their arrangement is in contrast to the nodes of tuberculous adenitis in that the apex of the pyramid is at the angle of the jaw and the largest nodes are at the base of the neck.<sup>11</sup> (Fig. 1.) The involved nodes are discrete from each other and free from adhesions to the surrounding tissue. Only late in the disease may

there be apparent fusion of the nodes, but upon dissection the periaxillary adhesions are usually easily broken. Constitutional symptoms of fever, weight loss, asthenia, and anemia are evidences of the advancing cachectic state. The fever is usually remittent or intermittent. The classical Pel-Ebstein type of fever is an infrequent manifestation. It is characterized by bouts of remittent fever lasting several days to a week or two, succeeded by several days or weeks of an afebrile course. Once the cycle is fixed, it may occur at remarkably regular intervals. Pruritus may be an early and solitary symptom of Hodgkin's disease. Pressure manifestations may be the earliest signs of exclusive intrathoracic, intra-abdominal or intraspinal involvement, or they may occur late in the course of a primary cervical, axillary or inguinal lesion. The range of pressure signs is too great to permit discussion at this time. Interestingly, spontaneous partial remissions in the local and constitutional evidences of Hodgkin's disease may occur from time to time.

The diagnosis of Hodgkin's disease is admitted on the basis of the clinical course and the physical character of the involved lymph nodes; but con-



Fig. 2. Roentgenogram of the above subject with Hodgkin's disease involving the superior mediastinum.

firmation by biopsy is in order. In event of intrathoracic or other visceral lesions, roentgenographic study may be invaluable in diagnosis and prognosis. (Fig. 2.) The roentgenogram may show the skeletal system to be characteristically involved. The blood picture is extremely significant.<sup>17</sup> Early there are merely the indications of

the action of a lymphotoxin. The total leukocyte count is normal or slightly elevated. There is a very temporary lymphocytosis. The eosinophil cells, basophiles and monocytes are increased. The monocytes may reach ten per cent and the eosinophil cells over 30 per cent of the total leukocyte count. Then, too, the platelets are early increased. Soon there occurs a gradual decline in the lymphocytic resistance reflected in a progressive lymphopenia in the peripheral blood until a point beyond which, with lymphadenopathy, and in the absence of suppuration, the blood picture is virtually pathognomonic of Hodgkin's disease. The total leukocyte count frequently exceeds 20,000. The lymphocytes may number only one or two per cent in extreme cases and they are frequently exceeded by the monocytes. The neutrophils may reach 90 to 98 per cent at this time. Eosinophils and basophiles disappear from the picture. A grave hypochromic anemia prevails eventually in a majority of these patients. Only occasional instances of chronic hyperplastic tuberculosis may be confused with Hodgkin's disease on the basis of the late blood picture.

Leukemia, whether lymphoblastic or lymphocytic, leukocythemic or aleukocythemic, offers the next diagnostic problem. Lymph node involvement characterizes all forms of lymphatic leukemia which occur three times as frequently in the male as in the female. Acute lymphoblastic leukemia is rare after twenty-five years of age and the usual incidence is before puberty. Its clinical picture strongly suggests an infectious process in the febrile course, angina and rapid prostration. The onset with ulceration of the gums, nasal or pharyngeal mucous membranes furthers this impression. The fever is usually sharply remittent. The pulse rate is commonly disproportionately elevated. The prostration is early, profound and progressive. Extreme lymphoid hyperplasia or infiltration of the gums leads to early submergence of the teeth, especially the molars. Ulceration occurs thereafter and local gangrene may supervene. In the later process Vincent's organisms may participate either as exciting or contributing agents. Extreme degrees of swelling may be found in the Waldeyer ring. This circumstance may lead to marked respiratory and deglutitory difficulty. The regional lymph nodes are first involved but eventually all lymphoid tissue participates. General lymphadenopathy with hepatomegaly and splenomegaly is the rule. The involved nodes are relatively soft (as compared with those of tuberculosis and Hodgkin's disease), non-sensitive, discrete and freely movable. Fluctuation through suppuration does not occur. Purpura may dominate the picture.

The diagnosis of lymphoblastic leukemia is usually made from the studies of the blood. A hyperleukocytosis is the rule; but cases of the disease may run their course with a leukopenia. Frequently these aleukocythemic forms have an extreme rise of the leukocyte count toward the end of life or preagonally. Of the usual 80,000 to 100,000 total leukocytes, up to 90 per cent will be mononuclear in form and their immaturity will be striking. Even in the aleukocythemic form of the disease this circumstance will be arresting, although occasionally biopsies of the lymph nodes or the bone marrow may be required to fix the diagnosis in this type. Interestingly an apparent effort toward compensation develops in the presence of immature cells of the myeloid series in the peripheral blood. Differentiation of these immature forms of lymphoid and myeloid origins may be sought by the peroxydase reaction. It should be borne in mind that all cells from the marrow do not show this characteristic reaction; hence it is only significant in positive instances and not differential if negative. Anemia and thrombocytopenia are constant features. The basal metabolic rate is elevated in both forms of lymphoblastic leukemia. Remissions are practically unknown in this disease.

Turning to chronic lymphatic or lymphocytic leukemia the clinical picture changes sharply. The predominance of the incidence in the male sex still prevails at the rate of three to one. Minot and Isaacs<sup>18</sup> give the age range as forty-five to fifty-five years. Eighty per cent of lymphocytic leukemia cases occur in individuals over fifty-one years of age. Its onset is usually very gradual, and professional advice is sought either because of obvious lymphadenopathy or progressive weakness and early fatigability. Constitutional manifestations may include inconstant fever, tachycardia and pallor. General lymphadenopathy ultimately exists in all cases. These nodes are not sensitive nor hard. They remain discrete and non-adherent. Hepatic enlargement is usually disproportionate to the splenomegaly which remains moderate. The cutaneous manifestations may be multiform. Pressure signs in the body cavities or from the peripheral node aggregations may be prominent. Bleeding into the skin and mucous membranes may be a late sign. Remissions of varying degrees may occur in the local and general evidences of this form of leukemia.

The clinical course, nature and distribution of the lymph node involvement, hepatomegaly and splenomegaly ordinarily conclude the diagnosis of lymphocytic leukemia. If not, the blood picture will usually be diagnostic. There is commonly a



hypochromic anemia of mild to moderate degree. Extreme hyperleukocytosis is not the rule. Total white cell counts of over 200,000 and under 50,000 are recorded. The average will be in the neighborhood of 150,000. Of this number from 80 to over 90 per cent will be lymphocytes. From time to time blasts may appear in the peripheral blood and the peroxydase reaction will assist in their denomination. Progressive reduction of the blood platelets may presage an oncoming purpura. The heterophil antibody titer is low in lymphocytic leukemia. The basal metabolic rate is usually elevated and its trend affords valuable information that will be discussed with reference to therapy. Biopsy of the lymph nodes or the bone marrow may be required to establish the diagnosis of the aleukocythemic lymphocytic leukemia, although careful and repeated blood studies usually raise the issue.

An unusual form of aleukemia bears the name, Mikulicz's disease.\* It is characterized by chronic symmetrical painless enlargement of the lacrimal and salivary glands. Conditions other than lymphomata may have a similar distribution of lesions. At times the lymphoid involvement may be widely spread; but as a rule the lacrimal and salivary glands alone are affected. The localization of the swelling to these glandular sites is typical. Extreme edema of the eyelids may attend the lacrimal gland involvement. Injection and

An increasing interest has arisen within recent years in the old-fashioned subject of glandular fever by reason of the amazing blood picture that sometimes attends its course. To this condition Sprunt and Evans<sup>19</sup> applied the term, infectious mononucleosis. Lately Tidy<sup>20</sup> has taken vigorous exception to the separate consideration of these conditions. In all probability he is fundamentally correct; although there is no gainsaying the occurrence of glandular fever without singular changes in the blood picture, it seems logical to consider the unusual so-called mononucleosis an occasional expression of glandular fever rather than a separate entity. Its particular interest lies in the confusion with the much more serious acute lymphoblastic leukemia. Infectious mononucleosis, or glandular fever with this unusual blood picture, is a disease of childhood or early adult life. Apparently these cases showing the mononucleosis have occurred preponderantly during the college years, since many of the larger series of reported cases have come from such communities. Hence it falls in the period of lowered lymphoid resistance. The epidemic incidence of the disease is significant; and if the etiologic agents should prove to be the organisms of Vincent, as claimed by Gorham and his associates,<sup>21</sup> the circumstances of its epidemiology would be easier of explanation. The affection is initiated much after the manner of any acute respiratory infection with a stuffy head, sore throat and general malaise. Rigor attends the febrile reaction and early prostration of a moderate degree occurs. The fever ranges from 101 to 104 degrees. A marked change in disposition, usually to a state of distinct irritability, is observed. Somnolence may be marked. The inflammatory changes in the conjunctivae, nose and throat are of incidental interest in the present relation. Ulceration may occur in the tonsils or pharynx. Jaundice is an uncommon sign. Quite early, enlargement of the lymph nodes of the posterior cervical chain may be noted. Thereafter, the lymphadenopathy may become universal, including the liver and the spleen. Indeed, it is unusual to find no appreciable splenomegaly. The lymph nodes are firm, not hard. They likewise are painless and discrete. Relapses may occur in the course of the rather protracted convalescence.

The diagnosis of infectious mononucleosis is usually made upon the study of the blood, although suspicion of the existence of a blood dyscrasia may have attended the clinical examination. Early a neutrophilic leukocytosis may pertain for a short period. With the manifest adenopathy, lymphocytosis prevails. The total white cell count ranges from 10,000 to 30,000. Few patients fail to show



Before roentgen therapy      After roentgen therapy  
Fig. 3. Photographs of a patient with Mikulicz's disease.

chemosis of the conjunctiva may be extreme. Ectropion is common and serious corneal ulceration occasionally develops. The peripheral blood contains no excess of lymphocytes. The diagnosis of Mikulicz's disease may be made upon inspection. The involved glands are usually firm but not hard. Microscopy of excised glandular tissue will clinch the point.

\* No attempt is herein made to differentiate between Mikulicz's disease and Mikulicz's syndrome. In the strict analysis the former term should be limited to a chronic lymphocytic infiltration and fibrosis involving the lacrimal and salivary glands, while the latter is an inclusive term for a series of pathologic processes, as leukemia, lymphosarcoma, Hodgkin's disease, mycosis fungoides, tuberculosis, and syphilis, affecting these glands.

an increase in the total figure; just as seldom does this number exceed 30,000. An inversion of the polymorphonuclear-lymphocyte ratio is anticipated. The percentage of the cells of the mononuclear order may reach as high as 90. These cells of lymphoid origin may be indistinguishable from the common large and small lymphocytes of the peripheral blood; or they may be atypical "leukocytoid" lymphocytes dependent upon higher differentiation or special cell activity.<sup>22</sup> The heterophil antibody titer is unusually high, a point of differential value.<sup>8</sup> Actually the close clinical observation of the patient with infectious mononucleosis will quiet fears as to the existence of the fatal acute lymphoblastic leukemia with which it may readily be confused. Even in the early prostration of the patient with infectious mononucleosis there is no suggestion of the profound depression and depletion that mark the course of lymphoblastic leukemia. The oral status of the two conditions is usually quite different. Local ulceration may occur on the tonsils or in the pharynx of patients with infectious mononucleosis; but there are no such infiltrations and necrosis of the gingival tissue as are commonly seen in lymphoblastic leukemia. Extreme anemia and thrombocytopenia are peculiar to lymphoblastic leukemia, and unusual in the patient with infectious mononucleosis. The blood studies in the two conditions will be differentially diagnostic to the trained hematologist. The prognoses will be discussed in another relation.

Lymphosarcoma is a further representative disease of the lymph nodes. Its incidence follows the rule of male predominance noted in other diseases of these tissues. While it may occur in the very young, the period of its greatest occurrence is between twenty-five and fifty-five years. In general it may be said to take up the curve where tuberculosis and Hodgkin's disease begin to release their hold. Any lymphoid tissue in the body may be the primary seat of involvement in lymphosarcoma, and visceral or inaccessible lymph node invasion may pertain throughout its course. Occurring in the accessible lymph nodes of the neck, axillae or groins, certain characteristics may be noted. Unilateral or unequal distribution is the rule, although from an initial site lymphosarcomatous metastases may spread throughout the body. The involved node or nodes are almost boney hard. (In the scale of firmness they are excelled only by lymph nodes the seat of extensive carcinomatous metastases). Fusion between adjacent involved nodes and adhesions to the overlying and underlying tissues occurs early in the process. These lymph nodes are not sensitive.

Ordinarily there is no inflammation of the attached overlying skin, and suppuration of the nodes is rare in the untreated case. Constitutional symptoms, excepting weakness, are uncommon, although fever does occur at times, possibly from necrosis in the neoplasm. From the nature of the involvement serious pressure consequences may be anticipated. These differ widely depending upon the location of the tumor. Important viscera in the body cavities, nerves, blood vessels, lymphatics, air passages or esophagus may feel the encroachment and lend their localizing evidences of the same in symptoms and signs. Remissions are unusual in this condition.

The diagnosis of lymphosarcoma depends upon the above cited factors in the history and course, together with the distribution and the nature of the lymph node masses. The roentgenogram offers invaluable aid in localizing and defining deep

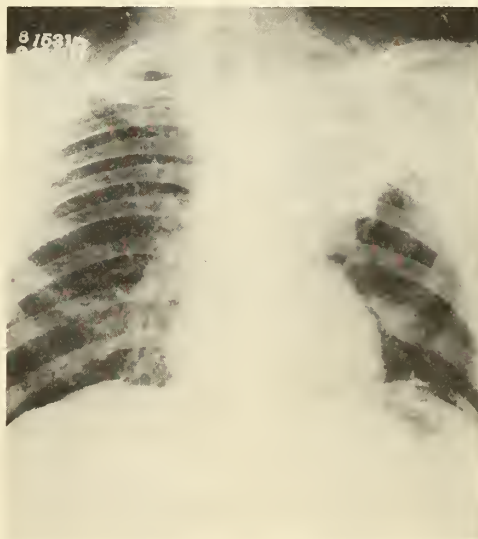


Fig. 4. Roentgenogram of a patient with lymphosarcoma.

seated tumors. (Fig. 4.) The blood picture is not diagnostic. A hypochromic anemia eventually develops and a moderate polymorphonuclear leukocytosis is found. Biopsy of the affected lymph nodes will afford the final link in the chain of evidence.

The prognosis of lymph node diseases varies widely. While a chronic affection, tuberculous cervical lymphadenitis usually does well under proper management. The greatest danger in such patients is the coincident existence of a widespread infection elsewhere in the body. The outlook in those tuberculous subjects with general lymphadenopathy is not universally good. Certain of these patients go down hill progressively in spite of apparently ideal conditions. Hodgkin's dis-

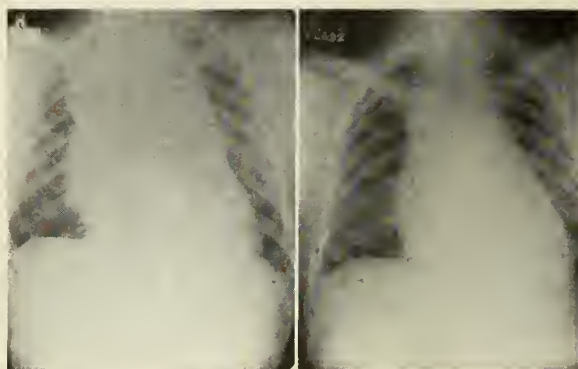


ease, lymphoblastic and lymphocytic leukemia and lymphosarcoma present uniformly unfavorable prospects from the standpoint of recovery. Patients with Hodgkin's disease usually live from two to five years from the initial symptoms. Minot and Isaacs<sup>23</sup> give the average duration of life as 2.76 years. Women with the disease live longer than men, and the length of life is greater in men over thirty-five and women under twenty-five years of age than in younger men and older women. The prognosis of lymphoblastic leukemia is uniformly fatal. Up to the present time survival creates doubt as to the correctness of the diagnosis. Such patients survive only eight to twelve weeks in a majority of instances. By contrast death from infectious mononucleosis is unknown. The average duration of life in patients with lymphocytic leukemia is 3.45 years.<sup>18</sup> The span is shorter in younger victims of the disease. The figures for lymphosarcoma are less definite; but two to three years is the average. In three of these conditions, Hodgkin's disease, lymphocytic leukemia and lymphosarcoma, roentgen therapy offers the prospect of marked alleviation of symptoms and a longer period of comfort and independence; but cure is no longer anticipated and the actual duration of life is not appreciably prolonged by this means.

The agents directed toward the treatment of diseases of the lymph nodes are limited but they vary with the indications. Supportive measures of rest, high caloric diet, fresh air and sunlight are universally applicable in the interest of the general resistance of the patient. Drugs have only a place in the symptomatic therapy of diseases of the lymph nodes. Arsenic is sometimes advised but there is little evidence in its favor. No treatment avails in lymphoblastic leukemia and symptomatic treatment alone is indicated in infectious mononucleosis. In tuberculous lymphadenitis it is important to measure the dosage of sunlight (or ultraviolet exposure) just as any other physical agent; but in the majority of instances its judicious use is attended by excellent results. Surgical excision of the involved nodes in this condition offers the best approach in some cases. Other surgical indications may be met as they arise. The use of the roentgen ray in the treatment of tuberculous lymphadenitis is attended by practical as well as theoretic objections. Not only is the lymphocyte highly susceptible to the roentgen ray but it is most essential in the natural resistance to the disease. Offered as an agent in stimulating lymphoid activity, the roentgen ray carries the serious threats of destroying this natural barrier, favoring massive necrosis in the affected lymph

nodes, and disseminating the infection. If it be used at all, it would seem available only in favoring the reduction of the lymphadenopathy after the active stage of the disease has subsided.

Deep (high voltage) roentgen therapy in measured doses finds a real place in the treatment of Hodgkin's disease, lymphocytic leukemia and lymphosarcoma. The general hygienic considerations of rest, diet, fresh air and sunlight must not be overlooked in this connection. The surgical extirpation of the primary mass and regional nodes in Hodgkin's disease and lymphosarcoma has been practiced with a measure of success by some surgeons; but this plan seems to be losing favor and roentgen therapy to be gaining ground. Murphy<sup>24</sup> proved the destructive action of the roentgen ray upon lymphoid tissue. Bunting<sup>5</sup> points out that the intermediate and the small lymphocytes are more susceptible to the roentgen ray than is the lymphoblast. Isaacs<sup>25</sup> offers an interesting explanation of the action of this agent, "all doses are stimulating, the larger doses, however, causing such a rapid rate of growth that the normal end is soon reached, and the cellular activities then appear to be 'depressed.'" In effect he postulates



Before After  
Fig. 5. Roentgenograms illustrating the response of mediastinal Hodgkin's disease to roentgen therapy.

an acceleration of the life span of the susceptible lymphocyte, and death from premature senility rather than from the direct destructive action of the roentgen ray. Whatever the manner of action, this group of patients shows a remarkable responsivity to such exposure in the melting of lymphoid masses (Fig. 5), subsidence of pressure signs, control of the leukemic blood picture and amelioration of the constitutional symptoms. Lymphosarcoma is the most sensitive of the group and the disappearance of masses of this order under the influence of radiation (roentgen ray or radium) is most impressive. In lymphocytic leukemia<sup>26</sup> and Hodgkin's disease<sup>27</sup> the basal

metabolic rate acts as an accurate guide to the availability of roentgen therapy. Leukopenia does not constitute a contraindication to roentgen therapy in these conditions if the basal metabolic rate be elevated. A low lymphocyte content arrests the attention, however. Anemia and thrombocytopenia are danger signs. Hemoglobin readings below 50 per cent and erythrocytes below 2,500,000 may be taken as indications for transfusions preparatory to this type of therapy. Frank purpura is usually given as a distinct contraindication. If these cautions and danger signals are observed, many of the adverse results of roentgen therapy in diseases of the lymph nodes may be averted. Even the apparently hopeless case may be greatly benefited by radiation. Unfortunately it does not offer a cure; eventually these patients come to a stage where the roentgen ray is no longer effective, and death ensues.

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## MEDICAL CLINIC

The case record of this patient, Mr. Thompson, sixty-three years of age, has been afforded me by Dr. Lamb. He complains chiefly of inability to walk. Apparently his story goes back to 1930 when he first complained of paresthesia in his feet, legs and hands. There was at that time no medical treatment but in July, 1931, he was told by his physician that he had 2,000,000 red blood cells, and thereupon was placed on ventriculin therapy. Of the episode I know no further, except that he has had several hospital admissions since, and one of those was because of an accident. His present complaint, as I have stated, relates entirely to his inability to walk, but he says that about a year ago there developed some painless swelling in the neck, and he told me a moment ago there have been determined certain others about his body. The family history is significant in that there is an incidence of an anemia or some blood disease that led to the death of a brother at fifty-two years.

Insofar as his examination is concerned, you have all the advantages that I have, an individual who is obviously senile, with a peculiar pallor, who lies relatively comfortably in bed; gray hair; pupils equal and centrally placed, reacting to light. His tongue shows normal papillary markings in the center of the dorsum with slight atrophy at the edges. There is no redness, however. In the cervical region there is a series of nodes that vary in consistency. They are not tender. There is a submental node that is somewhat harder than the rest, in distinct contrast to the almost cartilaginous feel, as of the nose, in the anterior cervical chain.

The nails are slightly down-curved. I call attention to that fact because there is a peculiar type of anemia in which the finger nails are spoon-shaped (koilonychia), the so-called idiopathic hypochromic or achlorhydric anemia that occurs particularly in women at the time of the menopause. The peripheral vessels are somewhat thickened. It is interesting that the pulses are equal. (In final examination of students, I always add ten points when they feel both pulses at once.) The epitrochlear nodes are not palpable on the left. The axillary nodes are palpable and number six or eight on either side. They are characteristically cartilaginous in feel, discrete and not tender. An epitrochlear node on the right is easily palpable. The inguinal nodes are bilaterally pal-



pable, although not unusually excessive. The chest is of emphysematous form, with an increase in the anterior posterior diameter, and a definite increase in the right subcostal angle. Obviously a general examination is out of order in this relation. A systolic murmur is audible at the cardiac apex, slightly transmitted out, and a second systolic murmur is heard at the base.

Placing the patient's right arm behind his back, with the legs flexed on thighs, thighs on trunk, the patient's head slightly flexed, the arm placed behind the back, behind the eleventh and twelfth ribs, and elevating the same, you have a replacement of the usual palpating hand. This passive position apparently effects a greater advantage than will the elevating hand of the examiner. The abdominal muscles are distinctly spastic. I cannot convince myself of a palpable liver. The left arm is placed behind the back, and here unusually great advantage is given by the displacement of the eleventh and twelfth ribs in rendering the spleen more accessible. The spleen is palpable, with the fingers lightly placed and upon very gentle abdominal pressure. There is a change in percussion noted just below the left costal margin at the height of inspiration; so the spleen does descend. The spleen, to be palpable, is about twice its normal size, that is to say, it should weigh 250 grams as compared with the normal 125 grams.

There is no dysmetria in the test movement of finger to nose; no ataxia; very active deep tendon reflexes for the upper left and right extremities. The lower extremities show definite swelling; pitting edema is demonstrable as far as the knees, and I have not examined further. Hyperactive deep tendon reflexes are present in the lower extremities, and these always lead to closer neurologic study. The next phenomenon is what we call an abortive clonus, which is really not a true clonus. Apparently there is tenderness in the legs. No Babinski, Oppenheim, Gordon or Chaddock signs are elicited. I call your attention to the fact that on the dorsa of the feet there is a definite purpuric eruption. This is apparently more marked on the left than the right, and there has been an application of mercurochrome, obviously for medicinal purposes.

In any anemic patient, the most important neurologic observation, particularly if there be paresthesias, relates to vibratory perception. The vibratory perception is going to be disturbed in this patient by the fact that he is edematous. Personally, I would discount it immediately. Loss of vibratory perception in both lower extremities is the first neurologic evidence of posterior or posterolateral degeneration of the cord. It may occur in pernicious anemia before there is any anemia.

It may be a manifestation of other neurologic diseases, but in relation to blood dyscrasias it is an unusually important point in diagnosis. It is rather important that position sense rarely parallels closely the loss of vibratory perception. I grasp the toe laterally when I am making the determination, because the pressure of the finger beneath the toe will give him the sense of pressure rather than the movement in the joint. There is some confusion on the left but apparently accurate definition on the right. Now you see I have taken the opposite grasp on the toe for lateral movements. In any event, there is apparent confusion in position sense on the left and fairly accurate position sense on the right.

The laboratory studies in this patient are quite complete and render the diagnoses clear; but before we come to a consideration of the second of these, I wish to point out that the diagnosis of pernicious anemia with posterolateral degeneration of the cord is justified, first, on history; second, on the finding of atrophy of the edge and tip of tongue and the neurologic manifestations, third, persistent achlorhydria; and fourth, the response to therapy.

The patient was given ventriculin. Ventriculin, as you know, is the desiccated hog stomach and it is given in doses of ten grams per million deficiency in red blood cells. If this individual had, as we assume, under 2,000,000 red blood cells at the time of his first observation in 1931, he would have been given ten grams three times a day; in other words, an equivalent of ten grams for each million deficiency. It is a potent product. It has, however, the same shortcomings as a number of other agents, namely, the fact that there are individuals who are ventriculin-fast, who will not react to ventriculin, but who do later respond to proper doses of liver extract. Obviously, then, an individual who was, at the period of his original study, determined to be suffering from pernicious anemia was given ventriculin in doses that were more or less adequate. Perhaps, I should say, inadequate because of the circumstance that he went on and developed increasing evidence of posterolateral degeneration of the cord. The latest studies indicate that if we give adequate dosage, the red blood cell count will rise to the normal level of 5,000,000. This patient has now 3,620,000, and the inference is that somewhere along the way there has been an inadequacy of liver therapy or substitution therapy of other sorts, because he has at various times had liver extract by mouth and by injection as well as ventriculin; or, of course, there may be some other inhibiting factor.

The further implication is equally evident, then, that the responsibility for the development of ad-

vancing cord manifestations may be attributed to inadequate therapy. I am not quite clear in my own mind as to just how many of the symptoms of neurologic involvement in pernicious anemia are peripheral and how many are central. I am clear, however, on the point that the neuritic manifestations will largely subside under liver therapy, whereas the symptoms and signs that must be explained on the basis of a more central location of the lesion, do not resolve even under the most adequate liver therapy. In this patient, then, we can dismiss one part of his problem with the statement that he still has evidence of an inadequate response. He still has, from the standpoint of definition of the laboratory, no free hydrochloric acid, the added point that is necessary to conclude that he is a pernicious anemia subject; and, of course, there will be no return of free hydrochloric acid to the gastric juice regardless of the adequacy of therapy.

In the past year a second factor has developed; that of the lymph node enlargement. It is possible to conceive of a circumstance under which the whole picture might have been fundamentally a dyscrasia of the blood forming mechanism, dependent upon a lymphatic disorder, but that is not necessary. The fact that he did respond, that there was a partial response to liver or ventriculin therapy, is sufficient evidence to rule out a primary leukemic background, but the present picture is complicated by the development of lymph node enlargement within the past year. The fact that he has at the present time 16,400 white cells and of these 16,400 white cells, 75 per cent are of the lymphocytic or lymphoblastic order, five per cent lymphoblasts and 70 per cent lymphocytes, is sufficient evidence to arrest the attention. It is apparent, then, that we have added something that is not only complicating the diagnostic picture, but also inhibiting the response to any ordinary therapy.

A further study has been made of this patient which confirms the diagnosis of chronic lymphocytic leukemia. A lymph node has been removed, and sections of this lymph node show a complete destruction of architecture, an infiltration of the lymphocytic order, even involving the capsule of the lymph node. Therefore, we have in this patient the unusual coincidence of pernicious anemia and lymphocytic leukemia. We would anticipate that the response to ordinary liver preparations would be inadequate if the two conditions coexisted. We would also expect that, if the condition had been primarily a lymphocytic leukemia and not pernicious anemia, he would not have responded to the liver therapy or ventriculin. In the last analysis, obviously, this patient is a sub-

ject for the use of radiation in some form, preferably the high voltage or deep x-ray therapy in addition to liver or ventriculin.

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## THE HEART IN RELATION TO SURGERY AND ANESTHETICS\*

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When heart disease is recognized prior to carrying out a surgical procedure the mortality rate is relatively low. This is explained by the facts that surgery is undertaken only when absolutely necessary, that the anesthetic and anesthetist are carefully chosen, and that the operation is done with as little trauma as possible. Ochsner<sup>1</sup> once said, "I think it would be unfortunate should surgeons receive the impression that patients suffering from heart disease are especially safe. I believe they are safe because they are considered especially unsafe."

According to Rehn<sup>2</sup> the normal heart will adapt itself to the great changes of a surgical operation without difficulty. In evaluating the risk of the patient with heart disease about to undergo surgery, it is important to recognize the etiologic type with which you are dealing. If hyperthyroidism is the causative factor, it is a well established fact that with proper preparation thyroidectomy can be undertaken with impunity. It has recently been shown that patients with other forms of heart disease can undergo thyroidectomy as a therapeutic measure with a very low mortality rate. In rheumatic heart disease, if compensation is good the risk involved does not seem to be very great. If fibrillation is present digitalization is essential, but in an extreme emergency this can be a part of the postoperative treatment. In younger individuals it must be remembered that activity of the infection is present even when all the clinical signs point toward inactivity. It would therefore appear unwise to undertake any but absolutely essential surgery in these cases. The patients with syphilitic and arteriosclerotic heart lesions seem to be the types who are most likely to have postoperative cardiac accidents. The former can be ruled out by serologic examinations. In the latter type a familial tendency to sudden death, dropsy, and other vascular accidents should be a warning signal. Symptoms of unexplained fatigue, shortness of breath on exertion and vague pains and discomforts in the upper epigastrium or retrosternally, point to a possible myocardial lesion. Persistent hypertension in patients over forty years of age is nearly always associated with coronary artery disease. It is in these cases that an

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internist can be of especial value to the surgeon in helping to judge the risk involved and to interpret properly the electrocardiogram. This laboratory procedure often will be a very great aid and I have found that slight alterations are extremely significant. It is a well established fact that the evidence of a cardiac disability found on physical examination is usually not as serious as are the latent factors found only by taking an electrocardiogram. In the arteriosclerotic type the finding of sclerosis of the retinal arteries indicates disease of the smaller arteries such as those of the coronary system.

As previously indicated the choice of the anesthetic agent is important, but the choice of a competent anesthetist is more important. All anesthetics cause an acceleration of the pulse rate due to psychic influences. Preoperative sedation will usually reduce this to a minimum. The anesthetic used should be nontoxic and easily eliminated. Of this type ethylene or nitrous oxide combined with oxygen are available in most hospitals. Either of these may be augmented with small amounts of ether when needed. If they are not available ether may be used with only a slight increase in the risk and because of its wide range of safety it is probably the best anesthetic in the hands of the inexperienced. Chloroform and spinal block should be avoided because they are circulatory depressants and the former is of course quite toxic. Local anesthesia in many cases can be successfully used, but psychic shock must be eliminated whether by sedatives or by light gas anesthesia. In the choice of the anesthetist it is important that the patient have confidence in him and if possible he should see the patient prior to the operation so that he may help to choose the type and method of anesthesia.

The surgical procedure itself should be undertaken only after all facts in the case are carefully weighed. Sufficient fluids and glucose should be given to prevent dehydration and to increase the glycogen reserve. The operation should be done with as little trauma as possible. It is suggested by De Santo<sup>3</sup> that there may be an alteration of the clotting index of the blood after anesthesia or trauma. Thromboses usually occur in vessels that have been previously damaged by disease. It is imperative to consider this fact before undertaking operations of choice when cardiovascular disease is present. Bright and Beck<sup>4</sup> have recently reported a series of cases where trauma to the chest was an important factor in causing cardiac disability. It is also not uncommon to have this complication in injuries to other parts of the body.

Postoperative management should be carefully supervised in patients with heart disease. The

circulatory volume must be kept as near normal as is possible. When indicated, transfusion or intravenous saline and glucose should be given. In many instances acacia in a six per cent solution can be used in shock as a substitute for blood. Distention and vomiting are often most distressing and if not relieved by simple methods a duodenal catheter should be inserted through the nose and left in place as long as needed. Pitressin and other smooth muscle stimulants should be carefully administered. Toxemia and sepsis are poorly tolerated by these patients and elimination of them by every means possible should be carried out.

When cardiac arrhythmias appear after operations, not for hyperthyroidism, immediate action is indicated. If there is the slightest amount of dyspnea or distress, morphine should be given in adequate dosage and if oxygen is available I believe it is a valuable adjunct. When fibrillation is present strophanthin 1/100 gr. intravenously every six hours probably gives the best results. In the severe tachycardias quinidine sulphate helps occasionally. When the tachycardia is due to coronary occlusion, oxygen and morphine are beneficial. A fifty per cent solution of glucose in 50 c.c. doses given intravenously is of value in the latter type of case. I should like to emphasize that the use of morphine is indicated in any form of cardiac accident since it is not only a cardiac sedative but in most instances a psychic sedative as well.

#### CASE REPORTS

Case 1. W. M. K., a white male business man, forty-seven years of age, entered the hospital May 1, 1934, with acute appendicitis. His family history was positive for arteriosclerotic heart disease. On physical examination he was found to have retinal and peripheral sclerosis, the heart sounds were muffled and his blood pressure was 160/90. An appendectomy was deemed advisable and was carried out under ethylene oxygen anesthesia. The postoperative course was uneventful. Seven weeks later while visiting with a friend he suffered a severe retrosternal pain. This pain radiated to his back and was accompanied by severe shock. His course and electrocardiograms suggested coronary occlusion. The pain in the back persisted for several weeks and because of this he was fluoroscoped. We found a large aortic aneurysm. Blood Wassermann and Kahn reactions were negative.

*Comment:* In this case it was recognized that the patient was a bad risk for surgery but because of the emergency it was deemed advisable to proceed. We made a diagnosis of dissecting aneurysm, arteriosclerotic type, and were very fortunate

not to have had the rupture at the time of operation.

Case 2. L. Y., a white male farmer, sixty-two years of age, entered the hospital September 15, 1930, because of prostatic obstruction. He had had rheumatic fever in childhood. On physical examination he was found to have retinal and peripheral sclerosis, a diastolic murmur at the apex and the blood pressure was 190/100. The electrocardiogram showed minor T wave changes. After fifteen days preparation a one stage prostatectomy was done. On the third postoperative day he had a sudden severe retrosternal pain and expired during an attack of coronary occlusion.

*Comment:* This was a case of rheumatic heart disease with mitral stenosis, complicated by arteriosclerosis. The electrocardiographic signs were not marked but if they had been heeded a cystostomy would have been done, and a year later when prostatic resection became available he could have had this more simple operation done with safety.

Case 3. L. C. F., a white male, seventy years of age, retired, entered the hospital August 24, 1932, with prostatic obstruction, a history of Stokes-Adams attacks and congestive failure. On physical examination he was found to have retinal and peripheral sclerosis, cardiac hypertrophy, a heart rate of 38, and nitrogen retention. His electrocardiogram revealed bundle branch block and complete heart block. An indwelling catheter was inserted and he was treated with theophylline and bladder irrigations. On September 19 a prostatic resection was performed by Dr. N. G. Alcock and the patient returned home in four days. He has had no recurrence of Stokes-Adams seizures and there has been no further change in cardiac findings.

*Comment:* The management of this case probably entailed much less risk than was undertaken in Case 2.

Case 4. C. B., a white female, fifty-five years of age, housewife, entered the hospital February 17, 1934, because of shortness of breath, weakness and rapid heart beat. Her history was typical of hyperthyroidism. On further examination she was found to have retinal and peripheral sclerosis, cardiac hypertrophy, blood pressure of 226/134, and gallop rhythm. Her basal metabolism was 40 per cent, and her electrocardiogram revealed a tachycardia and bundle branch block. She was placed on bed rest and later was given Lugol's solution. On May 11, 1934, a thyroidectomy, as near total as possible, was done by Dr. F. R. Peterson. Her convalescence was uneventful and she seemed to improve until July 1, when dyspnea again became prominent. In August congestive failure developed and the patient expired.

*Comment:* This patient had both hyperthyroidism and arteriosclerotic heart disease. With care in preparation she withstood the surgical intervention without apparent difficulty. No ultimate benefit was derived.

Case 5. F. H., a white male, retired farmer, sixty-two years of age, entered the hospital August 16, 1934. He had been advised at a neighboring clinic to have his tonsils removed because of a chronic arthritis. His family history was positive for arteriosclerotic heart disease and the patient had a known hypertension for a number of years. After entering the hospital he was put to bed and the routine blood examination was made. Shortly after this he had a typical attack of coronary occlusion. Electrocardiograms showed progressive changes in the T waves.

*Comment:* This case illustrates the danger of undertaking even minor operations in patients of this type. Had his attack occurred an hour later it would have been blamed on the surgery.

Case 6. T. C., a white male, a construction worker, forty-two years of age, entered the hospital on May 31, 1934, complaining of pain in the heart region. In February, 1934, he received a blow to his chest when an electric sign he was moving fell against him. He had a very severe pain lasting for thirty minutes. This pain was accompanied by shock and dyspnea. On the following day he was much better, but several days later the pain returned on moderate exertion. He had several similar attacks in the interim—a severe one recently. His family and past medical histories were negative. On physical examination he was found to have moderate retinal sclerosis. The blood pressure was 130/76, the heart sounds were muffled and a soft systolic murmur was present. His electrocardiogram revealed definite changes of myocardial damage. Succeeding records changed toward normal.

Case 7. H. A. A., a white male, a machinist, thirty-six years of age, entered the hospital on December 1, 1933, with a fractured pelvis. On December 8 he had an attack of dyspnea and the heart beat was irregular. This lasted only a short time. On December 16 he had a similar attack much more severe, with decided shock, and the day following his temperature was 100.4 degrees. On December 17 a friction rub was heard to the left of the sternum in the fourth interspace. Electrocardiograms showed progressive T wave changes of coronary occlusion. His physical examination revealed moderate retinal sclerosis. His father died suddenly at fifty-four years of age, and his past medical history was negative.

*Comment:* These two cases are illustrative of cardiac complications which may accompany trau-



matic surgical conditions. The former may be an illustration of definite cardiac trauma since he received a very severe blow to the chest wall. The latter was probably due to altered blood clotting as a result of trauma.

Case 8. R. S., a white male, a section foreman, thirty-three years of age, entered the hospital February 9, 1935, for relief of acute appendicitis. His family history was positive for arteriosclerotic heart disease. On physical examination, no signs of retinal or peripheral sclerosis were found. The heart was not enlarged, and the sounds were of good quality. The blood pressure was 150/90. An appendectomy was done under ethylene, oxygen and ether anesthesia. The following morning the nurse noted that the patient appeared to be in shock, was slightly short of breath, and his heart rate was very rapid. The electrocardiogram revealed a tachycardia of 160. The tachycardia varied from 114 to 160 and a friction rub was never heard. Succeeding electrocardiograms revealed marked R-T changes. On the third day he was slightly jaundiced, and he expired on the fourth day. Necropsy was not allowed.

*Comment:* It is my impression that this young man had a coronary occlusion and expired from it. We recognized a mild hypertension and also the family history, but we certainly were astounded to have such a serious complication in so young and robust an individual.

#### SUMMARY

1. Discovery of the latent cardiac patient is essential, if possible, before undertaking any surgical procedure.
2. The type of anesthetic agent and a capable anesthetist should be carefully chosen.
3. Operative trauma should be reduced to a minimum.
4. The maintenance of proper circulatory volume is extremely important.

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#### Discussion

Dr. B. F. Wolverson, Cedar Rapids: There are five groups of surgical cases which stand in particular need of a careful preoperative circulatory appraisal. In stressing the importance of these five groups, it is not intended to distract attention from or minimize the need of care in other types of cases, but these five types of surgical risks are those in which cardiovascular complications are most likely to occur.

The first of these groups is composed of patients

with gallbladder disease. Most of these patients fall in the age group in which the incidence of coronary sclerosis is high. It has been stressed many times, and again just now, that coronary sclerosis may not be revealed by any physical signs, but only by a careful history and electrocardiographic records. Further, many of the patients have the additional handicap of obesity, which throws an extra load upon the heart and may be complicated by fatty infiltration of the myocardium. Every surgeon knows that a number of gallbladder patients die postoperatively from circulatory complications. Whether gallbladder disease itself contributes to the presence of heart disease, or whether a gallbladder heart reflex exists need not be argued here. The important thing to bear in mind is that the incidence of cardiac abnormalities is relatively high in candidates for gallbladder surgery, and that examination of the heart in these patients cannot be too thorough.

The second group is composed of patients with prostatic obstruction. The great majority of these patients are in the seventh and eighth decades of life; a fact which alone insures a high incidence of coronary disease. Hypertension is the rule, as a result of sclerosis of the renal arterioles and the additional factor of reduced kidney function due to mechanical obstruction. A period of preoperative supervision from the cardiac standpoint as well as the urologic one, will tend to reduce the operative mortality rate, regardless of the operative procedure selected.

The third group is composed of patients with carcinoma. Here again the age factor applies, although not to the same degree as in the prostatic group. However, the surgery required for radical removal may be of greater magnitude, and less time is available for preparation. Secondary anemia, starvation, and dehydration affect the quality of the blood available to the myocardium, as coronary sclerosis affects its quantity. Both quantity and quality need to be enhanced as much as possible before operation.

An exceedingly important group in surgery, emergency or elective, is composed of patients with diabetes. Arteriosclerosis is advanced far beyond the usual for the patient's age, and the coronaries are not spared. In our zeal to control the blood sugar level, it should not be forgotten that the myocardium needs sugar and the concentration in the blood should not be reduced too drastically. Indeed, maintaining a blood sugar level of 150 to 250 mgs. per 100 c.c. of blood, avoids the danger of excessive hyperglycemia, but does not allow the myocardium to be deprived of sufficient sugar for its proper nourishment. Hypoglycemia may precipitate anginal pain or symptoms and signs simulating or suggestive of coronary occlusion, including electrocardiographic changes. Fatalities have occurred in such attacks in diabetics with coronary disease in whom hypoglycemia had been induced. It is safer, therefore, to allow a mild hyperglycemia than to permit hypoglycemia.

The difficulty in distinguishing between acute conditions in the upper abdomen and acute coronary occlusion is well known to surgeons. However, the

mere knowledge that coronary thrombosis may simulate such conditions does not always prevent mistakes. In any case in which there is any possibility that coronary thrombosis might explain the symptoms and signs, the surgeon will do well to have the opinion of an internist, who is better able to recognize the atypical case by eliciting a suggestive history, finding an obscure physical sign, or by recourse to electrocardiography.

These five groups of surgical cases are those which, in my opinion, are most likely to benefit from careful medical supervision, but, in addition, I wish to emphasize, with Dr. Rathe, that surgical cases in general deserve careful consideration from the cardiovascular standpoint.

### THE HEART AND DEFICIENCY DISEASES\*

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When we speak of deficiency diseases, we usually think of diseases due to avitaminosis. However, in our study of the relationship between deficiency diseases and heart disease, we are justified in being more inclusive. We will therefore, divide our subject into two parts; first, heart disease due to avitaminosis; and second, heart disease associated with a deficiency of some of the chemical and biochemical elements essential for the maintenance of normal heart physiology.

It is well to remember that when symptoms arise as a result of avitaminosis or a deficiency of some of the essential elements, that the deficiency has existed for some time. There are in the normal human body protective reserves which must first be exhausted before symptoms appear. The primary effect of Vitamin A deficiency is on the epithelial structures producing keratinization. It is the anti-infective vitamin. No definite cardiac lesions result from Vitamin A deficiency. Vitamin B is a complex substance consisting of at least two factors. These are, Vitamin B<sub>1</sub>, also called B<sub>1</sub> or F, antineuritic, the beriberi preventing factor, and Vitamin B<sub>2</sub>, also called G, the pellagra preventing factor. Beriberi is rarely seen in this country unless imported, and is usually confined to rice eating peoples. For many years the clinical picture of beriberi has been known. We will restrict ourselves to the cardiac and circulatory syndrome.

Professor Wenckebach recently had an opportunity to study the beriberi heart in Java. His monograph<sup>1</sup> is intensely interesting and my remarks are from portions of this article. Professor Wenckebach found the condition most prevalent in children and young men. The most com-

mon entrance complaints of these patients were great fatigue, forcible and distressing palpitation, pressure pains in the upper abdomen, paresthesia of the extremities, especially of the lower extremities, and pain in the legs. All found it impossible to work.

On examination enlargement of the heart is found both to the right and the left. On the right it is due to the enlarged right auricle and ventricle, and on the left to the dilated pulmonary conus. The enlargement becomes extreme and is of the mitral type. Even in the milder cases, enlargement is evident and this is striking in these slender people who are inclined to have the protic type of heart. On postmortem examination, the outstanding finding is the extreme enlargement of the right heart and the pulmonary conus. The muscle fibers show degeneration. The enlarged right heart crowds the left heart, especially the left auricle. The aorta is displaced to the left and organs lying near the left auricle are compressed. The right side of the heart is incapable, however, in spite of its extreme dilatation, to receive all the venous blood and to propel it forward. High venous pressure is present.

The murmurs vary greatly in character and location. They are always present in mildly severe cases. On the entrance examination the murmurs may be found to be very loud, but several hours later may have so decreased in intensity that one doubts his first impression. The murmur free heart will develop murmurs after exercise. They may become so loud that both heart sounds are replaced. The murmurs are usually systolic in time and can be heard over the entire chest. Their presence is ascribed to tricuspid insufficiency, the result of the extreme dilatation of the right heart. The left ventricle, which is not enlarged, would not be expected to produce a murmur. A diastolic murmur may also be heard in some, and suggests the murmur of aortic insufficiency or even mitral stenosis. It is softer and transmitted to the left. Since the aortic and mitral valves are not affected, the murmur must result from pulmonary insufficiency, the result of the extremely dilated pulmonary conus.

There is a visible pulsation of the chest, especially evident in the interspaces to the left. The direction seems from below upward and is striking in these slender people when they enter, being then increased by the exertion. There is also a pulsation in the epigastrium, not the pulsation of the liver, but, due to the systole of the right ventricle. The pulse suggests aortic insufficiency, severe anemia or sepsis. Pistol shot sounds may appear over the femoral. The rate may be normal or increased. The superficial veins of the arms and neck are engorged and pulsating. The liver

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is enlarged. The lungs, however, are clear. The blood pressure may remain high even in severe cases, the systolic pressure reaching 150. The diastolic pressure is inclined to be lower and may be very low.

The calves of the legs are enlarged and hard, but there is no pitting edema. With rest these may return to normal in a few days. In severe cases, other muscles, especially the ones used in hard work, become enlarged. This is striking in natives who have slender legs normally. When these people return to work too soon, an attack may be precipitated and death may result.

Patients dying of beriberi heart disease complain of severe oppression and difficult respiration. Frequently they also complain of a drawing and burning pain in the upper abdomen and lower chest extending to either side. The pain does not radiate into the left arm or ulnar distribution as is the case in angina pectoris. The patient tosses about in bed, endeavors to sit up but can do so only when the epigastric distress subsides, then soon has to lie flat again. Again he tosses about in extreme pain. His respirations are rapid and shallow. He coughs but raises no sputum, for the lungs remain free from congestion until shortly before death. Blood is therefore also not raised. The pulse becomes weaker, the congestion of the liver and veins more pronounced, the face extremely cyanotic. Little can be done for him in this stage. At times venesection will give remarkable temporary relief. However, before long the symptoms again appear and the patient dies of extreme right sided heart failure, such as is even rarely seen in the usual cases of tricuspid insufficiency. The reaction of the beriberi heart to some of the hormones is of interest. When adrenalin is given, there is an acute exacerbation of all symptoms in the course of a few minutes up to a half hour. It persists for a short time. It has been found that this response to adrenalin parallels the improvement, and so has been used as a therapeutic test during convalescence. It is given once a week and the reaction recorded. As long as the patient has not completely recovered there will be some reaction evident. It is interesting to watch the development of the disease and its course with this test. Pitressin on the other hand produces an equally prompt improvement in symptoms so that it has been considered of some therapeutic value. The venous pressure falls, the palpitation disappears, the pulse rate drops, and the diastolic pressure rises. The patient notices definite relief which may persist for half an hour to nearly two hours. The symptoms then return, but even after this, the patient states he feels better than he did before.

The remaining vitamins, B<sub>2</sub>, C and D produce no definite cardiac lesions.

Cardiac disease may be associated with a deficiency of some chemical and biochemical elements.

*Deficiency of hemoglobin* may give rise to definite cardiac symptoms. Oxygen plays an important part in the physiology of the heart muscle. Deficiency of hemoglobin results in an inadequate gaseous exchange leading to dyspnea, palpitation, arrhythmia and even edema. Many of these patients have been on large doses of digitalis with little or no relief. Some of the most gratifying results that we see are secured in these patients when placed on proper treatment. With the return of the hemoglobin and red cells to normal, the symptoms disappear. These cases illustrate the importance of a complete examination and not merely a heart examination.

*Oxygen deficiency* is still a debatable question. The drop in pulse rate and temperature with relief from restlessness that is often seen following the institution of oxygen therapy, indicates that it is a heart conserving measure. The indications for the use of oxygen are; to rest the circulation after gas poisoning, particularly carbon monoxide; hemoglobin deficiencies; cyanosis, where it is thought that the anoxemia is damaging the myocardium, such as massive collapse of the lungs or in pneumonia; and during the collapse and decompensated stages of coronary thrombosis.

*Deficiency of glucose*; an optimal amount of glucose which can be turned into glycogen is of importance in cardiac lesions. In arteriosclerotic heart disease, the myocardium seems more sensitive to a decreased blood sugar. Therefore, diets low in carbohydrate or insulin given to a point of producing a normal blood sugar may lead to decompensation or angina pectoris. Good results have been reported from its use in cardiac failure. It is likely that glucose, in addition to adding glycogen to the heart muscle, may also increase the coronary circulation.

*Deficiency of insulin* may play a part in cardiac lesions. Coronary disease is so frequent and apparently occurs prematurely in patients with diabetes. The reduction in the insulin supply seems to produce a reduction in glycogen synthesis which in turn reduces myocardial reserve. On this basis, insulin and glucose have been used by some in the treatment of angina pectoris. It is thought that by the promotion of glycogen utilization in the heart, an accumulation of substances producing anginal pains may be prevented. It is held that insulin acts at once by stimulating the glycogen metabolism in the heart muscle and progressively by promotion of fat combustion.

This latter assumes more importance with the recent work of Leary. His studies indicate that the principal lesion in coronary sclerosis is atherosclerosis; that is, the lesions arise as a result of lipoids entering the subendothelial layer of the intima and their phagocytosis by cells called lipoid cells. In the young the presence of these lipoid cells stimulates the growth of fibrous tissue with narrowing of the lumen of the artery, resulting in thrombosis. In the old, these cells do not stimulate fibrosis but accumulate in large masses resulting in inadequate nutrition. With necrosis and autolysis, liquefaction of the cell mass results and an atheromatous "abscess" is formed. Rupture of these so-called abscesses into the lumen of the artery produces death. It is held that insulin and glucose will lead to a resolution of these early atheromatous changes in the coronary arteries. When once the deposition is accompanied by necrosis, the degenerative changes are beyond help. Perhaps the removal of these lipoids is part of the action of insulin. Perhaps the lack of insulin with hyperglycemia and hypercholesterolemia is the cause of premature arteriosclerosis in diabetic patients. Present studies seem to indicate that these changes can be prevented by the early diagnosis of diabetes in the young, and sufficient insulin and correct diet, not too high in protein or fat and higher in carbohydrate.

*Deficiency of thyroid secretion*; there is still considerable confusion regarding the true nature of cardiac changes in myxedema. There are two schools, one believing that the lesions are incidental; the other believing they are due to the disease itself. Of the two the former has the larger following. Zondek made the first studies of the heart in myxedema. He reported diffuse cardiac enlargement, at times limited to the left side. Under the fluoroscope he noted a sluggish contraction of the heart muscle. In the electrocardiograph, he noted flat P waves, flat or inverted T waves and low R waves. Clinically, the symptoms of decompensation were mild, congestive failure being rare. Under thyroid therapy the condition returned to normal. Many have confirmed these changes. There is a close resemblance between changes in the cardiographs of myxedema and coronary sclerosis. The arteriosclerosis which some of these patients have may account for the lack of changes even after they have been given thyroid extract. Blumgart has studied the development of cardiovascular changes associated with the development of myxedema in cases of total ablation of the thyroid gland. He concludes that "myxedema heart" as a condition aggravating or precipitating attacks of congestive failure or angina pectoris does not develop when hypothyroidism is

produced in this way in patients whose metabolism is maintained at about minus 30 per cent.

*Deficiency of serum proteins*—Starling first showed that the colloid osmotic pressure was proportional to the concentration of the proteins in the serum. He advanced the theory that a decrease in the colloid osmotic pressure was responsible for the loss of fluid into the tissues and the production of edema. He stated that crystalloids, although having a high osmotic pressure, have little influence on the water exchange. They pass through the vessel wall with the water while the proteins, although having a much lower osmotic pressure, exert the principal influence because they do not pass through the vessel wall. The interchange of fluids between the blood stream and the tissues and lymph spaces is dependent on the interbalance between two factors.

1. The hydrostatic pressure, that is the blood pressure, at the arterial end of the capillary, which tends to drive fluids through the capillary wall into the tissues.

2. The osmotic pressure or oncotic pressure exerted by the non-diffusible proteins, which draw water from the tissues into the blood stream.

If the concentration of the serum proteins is low the effective colloid osmotic pressure is reduced and so is unable to counterbalance the hydrostatic pressure. If the venous pressure is increased as it is in cardiac failure, the hydrostatic pressure will be higher than normal toward the venous side of the capillary; the normal osmotic pressure will be unable to return fluids into the capillaries, and edema will result. Therefore, according to this theory, anything which decreases the hydrostatic pressure or increases osmotic pressure in the capillaries, will cause absorption of fluid. Anything which will increase the hydrostatic pressure or lower osmotic pressure will favor loss of fluid into the tissue spaces and edema will result. Hypoproteinemia may result from low protein intake. With cardiac edema we usually have increased venous pressure. This then increases the hydrostatic pressure at the venous end of the capillary bed, and edema results and cannot be prevented even if the colloid osmotic pressure is normal. Now, if the serum proteins are reduced in addition, as they at times are, one expects to find the edema increased by this additional nutritional factor. This low serum protein in some cardiac cases results from low protein intake. This is especially true in hypertensive heart disease where proteins have been reduced or restricted over a period of years. With the beginning of congestion, anorexia often results. Proteins are further restricted and the case becomes one of malnutrition with nutritional as well as cardiac edema.



Hence, it would seem wise to give cardiac patients diets sufficient in proteins, if there is no nitrogen retention, as well as high in carbohydrate. It is also wise to restrict the salt intake in edema.

It is no longer sufficient to prescribe digitalis on first thought or routinely. We must understand normal heart physiology, and in each case first determine whether the normal physiologic requirements are being supplied. These are in short, lack of avitaminosis; adequate hemoglobin for gaseous exchange; optimum glucose; oxygen; protein and mineral salts; a body free from infections, toxic and fatigue products; and an optimal production of thyroid secretion.

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### DIAGNOSIS OF CARCINOMA OF THE PANCREAS\*

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There is no clinical syndrome singularly characteristic of carcinoma of the pancreas. There are no physical, laboratory or x-ray signs which, in themselves, are final in the diagnosis. Thus, we are dealing with one of the most difficult problems in diagnosis. In this disease we have a lesion for the most part non-inflammatory and until late quite non-toxic. It is slowly developing in an organ which is too often mysteriously illusive to our best agents of investigation, including the x-ray.

The fact that the pancreas lies high and deep in the abdomen so often renders its enlargement immune to detection by the most highly trained palpating fingers. Furthermore, when a pancreatic mass is palpable it can be most deceptive due to its close anatomic relation to every organ in the upper abdomen, barring none and including the kidneys and suprarenal bodies, particularly on the left. Neither can pancreatic malignancies be trusted to be fixed in position. They may descend on inspiration as much as three to five centimeters.

The symptoms of carcinoma here are bizarre. With the organ lying as it does in such close apposition to the abdominal aorta covered by a wealth of sympathetic nerves and ganglia—the celiac plexus, the tumor, either by pressure or invasion involving this plexus, sets up disturbances which may simulate various acute and chronic diseases of the upper abdomen and chest. It may even disguise the entire picture as that of a purely

functional nervous disorder and the patient be stamped as a so-called “neurotic,” as was emphasized by Yaskin<sup>1</sup> in 1931.

#### LABORATORY FINDINGS

Laboratory tests for pancreatic malignancies are disappointing. Partial loss of function of the pancreas even when a sizable growth is present is not easily detected. Fatty stools, formerly thought to be rather expected in this disease, are found to be conspicuously absent except in a very few cases. Bacterial action in the bowel supplants the action of the pancreatic juices in fat digestion. Abnormal blood sugar levels point to pancreatic disease, but the islands of Langerhans seem to be resistant to involvement by carcinoma in a very high percentage of cases, so that hyperglycemia from insulin reduction is in evidence only occasionally. In a series of 50 cases studied by Hick and Mortimer<sup>2</sup> it was present in seventeen per cent. and others have found it in less than ten per cent. In primary cancer of the islands of Langerhans, hyperinsulinism occurs with, of course, a low blood sugar level, but Eusterman and Wilbur<sup>3</sup> found this in only three of 405 cases of carcinoma of the pancreas.

The blood lipase activity, as worked out by Comfort and Osterberg,<sup>4</sup> shows an appreciable reduction in the aggregate of many cases of pancreatic disease studied, but for individual cases it is not dependable because of the percentage of normal readings and because it is not yet known to be a specific test of pancreatic function. The blood study shows a secondary anemia only late in the disease, and in 50 per cent a mild leukocytosis. The blood urea nitrogen is normal. The duodenal contents may show an absence of both bile and pancreatic secretion in obstructive jaundice by a pancreatic malignancy, and thus will aid in differential diagnosis. Without jaundice there may be an absence of trypsin ferment in the pancreatic secretions. Gastric acidity shows no significant changes but tends to be somewhat low.

The urine in jaundiced cases shows increased diastase value and increased bilirubin but no increase in urobilin or urobilinogen. Glycosuria occasionally is present as a result of hypoinsulinism.

The laboratory findings, then, are significant in only a few cases for their positive findings. Where do we find the bulk of evidence for at least a presumptive diagnosis? Only in the carefully correlated symptomatology, physical signs and x-ray study.

#### SUGGESTIVE SYMPTOMS AND SIGNS

Despite the wide variety of symptoms produced by carcinoma of the pancreas, there are a few features which are fairly constant and can be classified as cardinal evidence.

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1. Cachexia with weakness and weight loss. Most observers agree with Bard and Pic<sup>5</sup> that these are most constantly present even in the early stages. Kiefer<sup>6</sup> reports these as first symptoms in 22 of 33 cases and present in 29 of them. Speed<sup>7</sup> found them early in 90 per cent. Fletcher's<sup>8</sup> experience showed an average weight loss of roughly ten pounds a month.

2. Jaundice appears in 70 to 80 per cent. It is usually progressive and of a darker hue in which pruritis is just as often as not absent. Jaundice is not always present at the onset of symptoms in carcinoma of the head of the pancreas and when present is not always without pain. Nevertheless, painless jaundice is of great diagnostic importance.

3. Pain is a frequent symptom and is present in 60 to 80 per cent of the cases. Leven<sup>9</sup> describes three types of pain: first, a severe steady boring midepigastric pain radiating through to the lower dorsal back, increased on lying down; second, a colicky type in the epigastrium radiating around to subscapular regions, particularly on the right; and third, paroxysmal attacks of pain near the umbilicus resembling tabetic crises. He, like many others, ascribes the cause of the pain either to pressure on or infiltration into the sympathetic trunks by the tumor substance. Most writers, however, are unwilling to describe a pain typical of this disease because of its wide variance in site and character; but, the deep hard boring epigastric pain radiating to the back, relieved somewhat by sitting up and unrelated to food ingestion is stressed as probably the most suggestive type. Some have attempted to differentiate malignancies of the head, body and tail of the pancreas by the character of the pain, but this is too fantastic to be practical.

4. Anorexia. This symptom, while typical of carcinoma in general, seems to be a more prominent symptom in carcinoma of the pancreas regardless of whether or not there is duodenal or biliary duct obstruction, and should be included in the list of frequent symptoms.

Unfortunately we must stop here with these four if we are to consider the frequent signs and symptoms in this disease; to repeat, cachexia with weight and strength loss, jaundice, pain and anorexia.

Next in order of frequency of positive signs are the x-ray findings. In Ensterman's series about half the cases which were studied roentgenologically gave some evidence by displacement, pressure signs or infiltration defects in the stomach, duodenum or transverse colon. Accurate interpretation of these findings, however, is very difficult at times, particularly in cases of infiltration defects. In addition to these valuable positive signs

are the negative x-ray findings in the gastro-intestinal study, cholecystograms and pyelograms as a material aid in ruling out diseases of the neighboring structures. There is a palpable tumor in 20 to 40 per cent and it is usually tender. It may lie in the right, left or midepigastrum and may be very difficult to identify without the aid of the x-ray. In obstructive jaundice the gallbladder is enlarged in keeping with Courvoisier's law; that is, the gallbladder enlarges when the common duct obstruction is due to growth and is contracted when the obstruction is due to calculi or inflammatory processes. However, an enlarged gallbladder is difficult to palpate except in abdomens unusually favorable to palpation. In Hick's series of nineteen cases in which the enlarged gallbladder was proved by autopsy, the clinical records showed that it had been palpated in only six. Ascites may develop late due to pressure on the portal vein or inferior vena cava, but is usually due to a peritoneal carcinomatosis. Rarely there is a chylous ascites from pressure on the receptaculum chyli.

#### DIFFERENTIAL DIAGNOSIS

In the differential diagnosis primary carcinoma of the ampulla of Vater and biliary ducts cannot be differentiated clinically from this disease. Progressive painless jaundice may be the first sign in either. Pancreatic secretions may be present in the duodenum in carcinoma of the ampulla because of the accessory pancreatic duct. Baldwin has found this duct in 80 per cent of autopsies. In fact, on the operating table it may be impossible to determine the origin of the tumor when it involves both the duodenum and pancreas.

Carcinoma of the gallbladder is slightly more rare but there is usually a previous history suggesting cholecystic disease. It must not be forgotten, however, that cholecystic, gastric and pancreatic diseases frequently coexist, and this adds materially to the difficulty. Acute catarrhal jaundice, chronic pancreatitis with jaundice, hepatitis with jaundice, biliary cirrhosis and chronic cholecystitis may be difficult to rule out at first, but by a short observation period this is made relatively easy because of the rapid decline in general health in the case of malignancy.

Lesions of the stomach, transverse colon, esophagus and kidneys can be disclosed by x-ray methods, as can also diverticulitis of the duodenum.

Metastases from this organ are similar to those of the stomach and colon, and in rare instances there is present a metastatic tumor in the left supraclavicular region, the so-called Virchow's gland. Biopsy of this tumor usually reveals the origin of the primary lesion. However, in our own experience we have had one case with metastasis to the neck in which the biopsy was not diagnostic



because the section showed only undifferentiated tumor cells. Pathologists in three different institutions of the middle west agreed that the primary lesion was probably retroperitoneal and most likely a renal tumor. The diagnosis of carcinoma of the pancreas was made at autopsy. This further illustrates the difficulty in establishing a diagnosis of pancreatic malignancy.

#### CONCLUSIONS

In a case of cachexia with weight and strength loss; a deep progressive jaundice; a hard boring epigastric pain radiating to the back, affected by posture; a palpable epigastric tumor which is fairly well-fixed and tender; a palpable gallbladder; an abnormal blood sugar level; and positive x-ray findings, we have all the cardinal symptoms and signs present for a reasonably accurate clinical diagnosis of carcinoma of the pancreas; but the actuarial computation by percentages would reveal the fact that all these features are present in the same case in only one out of at least two hundred cases. In the great majority of cases many of these are lacking or indefinite, so that a satisfactory diagnosis is difficult or impossible, but it seems fair to say that with cachexia, weight and strength loss as one, plus any two of the remaining features we have sufficient evidence for a presumptive diagnosis.

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#### GASTROJEJUNAL ULCER\*

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With increasing frequency in recent years the radiologist is called upon to lend his aid in the diagnosis of a postoperative complication known as gastrojejunal ulcer, or jejunal ulcer, following gastro-enterostomy. The occurrence of gastrojejunal ulcer is so serious a complication, and the frequency of incidence is so debatable a question,

that the whole subject is worthy of considerable thought and study.

It is hardly within the scope of this brief paper to enter into any controversy over the merits or demerits of gastro-enterostomy for the treatment of peptic ulcer. That point has been debated pro and con by the surgeons for a great many years and the opinion is still widely divergent, particularly where the treatment of duodenal ulcer is concerned. It has been pretty well agreed that gastro-enterostomy alone is hardly adequate in the treatment of gastric ulcer, and should be used in conjunction with partial gastrectomy, or excision or cauterization of the ulcer crater itself.

Gastro-enterostomy in the hands of some men, notably Balfour, Moynihan, Scudder, Woolsey, and many others, has proved a very satisfactory method in the treatment of duodenal ulcer. However, there is another group of men, including Lewisohn, Davis, Finsterer, Haberer, and others, who do not endorse that method, and have devised modifications and substitutes for gastro-enterostomy.

#### INCIDENCE

The incidence of gastrojejunal ulcer ranges anywhere from 2.9 per cent and 3.26 per cent as reported by Benedict and Balfour respectively, to as high as 34 per cent by Lewisohn. Among the European writers the incidence is even higher, and so much dissatisfaction has been expressed that many have turned to much more radical measures.

#### ETIOLOGY

Practically speaking, jejunal ulcer and gastrojejunal or marginal ulcer is an artificial disease, secondary to gastro-enterostomy. Gastrojejunal ulcers occur at the stoma or line of suture, and jejunal ulcers occur distal to the stoma. It is generally believed that marginal ulcers result from the use of non-absorbable suture material, and that jejunal ulcers are most likely due to the action of gastric acid juice on the mucosa of the jejunum. Benedict, in a recent article, has called attention to the numerous theories supporting this belief. Other factors must also receive attention, such as the presence of foci of infection, faulty surgical technic, and improper selection of cases. It is well recognized that a regime of medical care should follow all gastro-enterostomies, and in my experience, the majority of patients in whom I have checked the functioning of the stoma, have followed some type of dietary management for a period of from six months to over five years.

#### SYMPTOMATOLOGY

The outstanding feature of gastrojejunal ulcer in the vast majority of cases is a sharp burning pain, which in many respects simulates the original

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peptic ulcer. The pain is usually localized to the left side of the abdomen, about on the level of the umbilicus, or slightly below this level. Some assert they get relief from food intake and alkalis, but the majority get very little comfort from those remedies which formerly had given considerable relief in the original peptic ulcer. The presence of blood in the stool is an almost constant finding, although hematemesis may or may not be present. When gastrojejunal fistula has occurred, there is as a rule, very little pain present; the chief symptoms being that of a diarrhea with undigested food in the stool, and a loss of weight.

#### DIAGNOSIS

The diagnosis really consists of the clinical symptoms, and the x-ray findings in any case in which there is a history of gastro-enterostomy. The clinical symptoms have been very briefly mentioned above. The roentgenologic findings can be divided into the direct and indirect signs of gastrojejunal ulcer. It goes without saying that the direct evidence is by far the most reliable and a definite visualization of the ulcer niche is undeniable evidence of the presence of such an ulcer. Unfortunately, it is not always possible to demonstrate the barium filled crater, either on the film, or under the fluoroscopic screen. Camp estimates that the ulcer niche can be demonstrated in 60 per cent of the cases. I regret to report that my own "batting average" is somewhat below that. In examining the stomach, it is best to use a relatively small amount of the barium mixture, and attempt to visualize the gastric mucosa and stoma in relief, both under the screen and on the film. Too large an amount of barium may cause the lower border of the stomach to overlap the jejunum, thereby obscuring the very part of the small intestine which should bear the closest scrutiny.

One must also bear in mind that the anatomic relations have been definitely altered, and adequate allowances must be made for some changes in the appearance of the stomach and intestines.

#### CASE REPORTS

*Case 1.* F. C. B., male, forty-eight years of age. This man had suffered from duodenal ulcer for six years, and by 1930 had begun to get some partial obstruction. At this time, a posterior gastro-enterostomy was performed, giving him complete relief for two years. In 1932 he had a return of symptoms, consisting of sharp burning pain in the left lower quadrant, occurring three hours after a meal. Soda and food intake gave definite relief. Frequency of urination was also present, and there was definite localizing tenderness below and to the left of the navel. The x-ray examination revealed a very definite, and well visualized

jejunal ulcer niche, about one inch distal to the anastomosis. At operation, the anastomosis was undone, the jejunal ulcer excised, and a gastroduodenostomy done. He was free of symptoms for a little over two years, but at the present writing, he is again having trouble, so that it is doubtful if this man's second operation will prove any more successful than the first.

*Case 2.* C. M., male, forty-seven years of age. This man had a posterior gastro-enterostomy performed in 1917 for relief of a duodenal ulcer, with complete relief for seven years. In 1924 ulcer symptoms began, gradually becoming more severe. In 1932, an x-ray examination revealed a jejunal ulcer just distal to the stoma. The anastomosis was taken down, the jejunal ulcer excised, and the normal course restored. In 1934, because duodenal ulcer symptoms returned, the patient was reopened, and a gastroduodenostomy was performed. At the present writing he is free of symptoms.

*Case 3.* Male, thirty-eight years of age. A gastro-enterostomy had been performed in 1926 for gastric ulcer, and for four years he was free from symptoms. In 1930 he began to have attacks of burning pain in the left upper quadrant and blood in the stools. Repeated x-ray examinations failed to visualize any definite ulcer niche and our examinations were essentially negative. However, the evidence from the clinical side was so strongly positive that a laparotomy was done and a marginal ulcer was found. The anastomosis was taken down; the ulcer excised, and the normal gastroduodenal course restored. This patient has been relatively free from symptoms since. The ulcer in this case was at the margin of the stoma and unless the crater was filled at the time of the examination, by food or detritus, should have been seen.

In addition to the niche there is frequently considerable spasm of the gastric wall around the stoma, localizing tenderness directly over this area, and some rigidity of the abdominal muscles. When one is unable to visualize the ulcer niche in a case of suspected gastrojejunal ulcer, he is then compelled to evaluate carefully the indirect signs that are present. These consist of spasticity and irritability of the gastric wall and jejunum in the vicinity of the stoma, and are indicated principally by irregularities of the stomach wall and the manifestation of spastic contractures during the fluoroscopic examination. Closure of the gastro-enterostomy stoma indicates pathologic changes in and about the opening. This may be due to cicatricial scarring as a result of a chronic marginal ulcer, or it may be entirely due to localized spasm, associated with ulcer. In either case,



the examiner is unable to force any barium mixture through the stoma, and the stomach is attempting to empty by way of the pylorus and duodenum. This evidence may be considered as indirect, but nevertheless it is as highly indicative of pathology as the direct visualization of the ulcer niche itself.

A fourth sign is the demonstration of a gastro-jejuno-colic fistula, and is best shown by filling the colon with a barium enema. The colon will fill normally up to a point in the transverse portion, where the barium mixture will be seen to pass almost directly into the stomach. Benedict reports the incidence of this complication as occurring in approximately 14 per cent of a series of thirty-six cases of jejunal ulcer at the Massachusetts General Hospital. I have seen, however, several patients in whom the clinical signs and symptoms were so strongly suggestive of gastrojejunal ulcer that an exploratory laparotomy was indicated, and yet, radiographically presented neither direct nor indirect signs of any trouble. Some of the failures may be explained upon the basis of faulty technic; others by the fact that the suspected area was so obscured by the changes in anatomic relationships that a good visualization was impossible; still others have no reasonable explanation.

#### COURSE AND TREATMENT

A few of these unfortunate patients may be carried along for indefinite periods of time by careful medical management, but the large majority require surgical care. As to the type of surgical treatment, it will depend almost entirely upon the individual case, as each and every patient presents his own peculiar problem. In a certain percentage of patients, the simple undoing of the anastomosis alone may solve the problem. Others may require some form of pyloroplasty or gastroduodenotomy. Still others may require a subtotal gastrectomy, the resected portion of the stomach to include the stoma. Many of our leading surgeons have agreed that when secondary ulcers have occurred, undoing of the anastomosis and a restoration of the gastroduodenal channel if possible, is the method of choice.

#### SUMMARY

1. The incidence of gastrojejunal ulcer ranges anywhere between three and thirty-four per cent, according to many reports of series of cases in the literature.

2. Roentgenographic examinations play an important part in the diagnosing of such lesions, although the accuracy is admittedly not as high as that in the diagnosis of gastric or duodenal ulcer.

3. The treatment of gastrojejunal ulcer is chiefly surgical.

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#### INJURIES TO THE SPINE\*

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It has long been said that a man is no older than his arteries. It may also be said that a laborer is no better than his back. In discussing injuries to the spine, in the short time at our disposal today, it would be impossible for me to go into detail on the more obscure injuries, especially those occurring at or about the lumbosacral junction. These are highly controversial subjects and ones which have only in the past few years been studied with any degree of care. Also I do not intend to go into the neurologic aspects of these injuries except as they concern diagnosis, because you are to hear a talk later this afternoon devoted entirely to this phase. I will therefore devote this time to a discussion of the more common gross injuries to the spine, their etiology, their diagnosis, and in a general way the accepted treatment at the present time, and what results one should expect.

The question of etiology I will mention only briefly as you are all familiar with it. Fractures of the spine occur usually in either of two places, the cervical spine in which the bones are relatively small and not guarded by heavy musculature, and the lumbar and lower dorsal spine in which the bones, while larger and well protected by heavy muscles, are subjected to considerable force because of superimposed body weight and are unguarded by the ribs which well protect the thoracic spine. Injuries to the cervical spine are ordinarily caused by a fall from a height, diving in shallow water, or a fall on the head; injuries to the lumbar spine are usually caused either by hyperflexion or hyperextension of the spine, or by a fall from a height alighting on the buttocks transmitting force directly up the back. The diagnoses of fractures in these two areas differ somewhat

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and while I do not wish to go into any detail on either I do wish to point out the common symptoms which lead one to suspect fracture.

In the cervical spine the history of a fall, or history of a dive followed by pain and stiffness in the neck, and quite often by numbness and tingling in the arms, quite often by a burning sensation up the head behind the ears over the lesser occipital nerves and, of course, if displacement is severe, partial or complete paralysis are suggestive. We must remember that even if an individual who has dived into shallow water or who has, we will say, fallen off a haystack, is able to get up and walk about, and even if there is no complete paralysis or even immediate partial paralysis, he may nevertheless have suffered a more or less severe injury to the cervical spine which requires a detailed examination. If following such an injury a patient is completely paralyzed, anyone, even a layman, would be quite sure that he had broken his neck. If, however,



Fig. 1. Technic of reduction of dislocation of the cervical spine. Note convenience of suspension of head by overhead frame.

he is not completely paralyzed but does complain of tingling in his arms, pain and stiffness in the neck, difficulty in swallowing, pain in the posterior scalp, etc., these signs and symptoms should warrant a careful roentgenologic examination, since a fracture of considerable severity and a surprising amount of displacement can occur in this area without either complete or partial paralysis immediately supervening. The x-ray examination of the cervical spine should be com-

plete, because an incomplete x-ray examination is worse than none at all since it engenders a false sense of security. Such an examination must include a lateral x-ray taken with the patient sitting if he is able to sit, with the hands grasping the rungs of a stool below him to throw the shoulders out of the way, or if this is impossible, the picture must be taken with him lying on a hard table with a sling around either wrist and assistants pulling the shoulders down out of the way. The treatment of fracture dislocations in the cervical spine with or without paralysis, providing there is reason to think the cord has not been irreparably damaged, has been well demonstrated by Brookes<sup>1</sup> of St. Louis, and consists essentially of manipulative reduction of the displacement by traction with a head halter modified slightly by your essayist to include the use of a head sling (Fig. 1) which holds the head and greatly facilitates the application of the cast after reduction has been completed. Reduction naturally should be checked with the x-ray both laterally and anteroposteriorly before the plaster is applied. A plaster of the Calot type is that usually worn and should be worn for a number of weeks depending on the position and extent of the fracture dislocation, the exactness of the reduction obtained, and the patient's age. This then is followed by some sort of convalescent collar which is worn while the patient is up and about with a cotton collar at night. A cotton collar consists essentially of a heavy piece of quilting some two inches wide at one end and six inches wide at the other, which is wrapped tightly around the neck starting with the narrow end at the Adam's apple and firmly bound with a bandage. This device steadies the head much more than one would think and is extremely useful also as a first aid transport device to protect the head against moving until the permanent dressing can be applied. It is much more comfortable and efficient than any type of sand bagging.

Injuries to the lower spine from the eleventh dorsal vertebra down are usually caused by the application of more force than is necessary for fracture dislocation in the cervical spine. Auto accidents, falls from a height, and crushing injuries of various types, all oftentimes result in fractures or fracture dislocations in this area. The most constant sign, of course, as in other injuries, is pain. This pain is also often accompanied by shock, ileus, inability to void and in the more severe cases, with paralysis either motor or sensory or both. However, here again as in the cervical spine the fact that a patient is not paralyzed and does not have retention, or even does not have ileus is no positive proof that serious injury to the spine has not occurred. In fact, fractures



of the compressed type, which far outnumber all other types of fracture in this area, are seldom accompanied by paralysis or even by any evidence of nerve involvement. There is, however, one symptom which almost invariably occurs following any major or even comparatively minor trauma to the lower spine and that symptom is muscle spasm. These patients when asked to bend over do so entirely from the hip joints, holding the back perfectly rigid and stiff.

The immediate first aid for all injuries to the lower back is of considerable importance especially as regards transport, because a great deal of harm is often done by injudicious handling of these patients. The axiom of the Fracture Committee of the College of Surgeons "Splint them where they lie" applies here with even greater force than it does in other injuries. The lifting of a patient to put him into a car may increase the deformity, and in fact may, by flexing the spine, cause irreparable damage to the cord. Patients with low back injuries should always be transported face down, for by this method of transport no further harm can be done. As far as the permanent treatment is concerned it naturally has to vary as to the exact nature of the injury, and the nature of the injury again must be determined by accurate x-ray pictures, preferably stereoscopic anteroposterior and lateral. Permanent treatment must also vary according to the severity of the patient's reaction to the injury, and it is usually unwise to effect an immediate reduction or attempted reduction of these fractures. Patients nearly always have some degree of shock, they also nearly always have marked ileus and the tremendous ballooning of the abdomen is in itself a dangerous thing. When the initial shock and initial ileus and other immediate complications have subsided, then reduction must be considered and if possible effected.

The first attempts at reduction of low back injuries were made by Arthur Davis<sup>2</sup> of Erie in 1929 who described a decompression of compressed fractures with an overhead sling on the feet. Following this original work other methods of obtaining the same result have been devised. One is hyperextension on a hinged Bradford frame as described by Herzmark.<sup>3</sup> This method has the advantage of being extremely simple but the disadvantages of making it impossible to turn patients over to care for the back, and of requiring hospitalization. Another is the method first described by myself<sup>4</sup> and <sup>5</sup> in 1930 of reducing these fractures with the patient in the dorsal position by hyperextending the back with an automobile jack (Fig. 2), followed by the application of a cast, which has the advan-

tage of a firm fixation of the fracture while still allowing the patient to be up and about and requiring a minimum hospital stay. All of these methods work very well in properly selected cases. In the last year or two further attempts have been worked out to reduce various types of deformity following fractures to the lower back by the application of the same principles. Lateral compression with scoliosis can often be readily



Fig. 2. O'Donoghue "Jack" decompression.

corrected and even the severe fracture dislocations with paralysis can be markedly improved by manipulation, and unless one has every reason to think the cord has been irreparably damaged these dislocations should be so improved. One *must* in advising treatment for this condition *remember* that the cord proper terminates at about the second lumbar segment and that the restoration of some degree of alignment of the back may result in a rather remarkable improvement if the injury is only to the caudal nerves which react the same as other peripheral nerves. This patient, for instance, (Fig. 3) in spite of the tremendous lateral deformity and even actual overlapping of

the two fractured vertebrae, and although his injury is only of five months' duration, has, following the correction obtained, which was done three days after injury, made a complete recovery of sensation, regained complete control of the bladder and bowel, and at the present time is slowly regaining some motor control in the thighs,

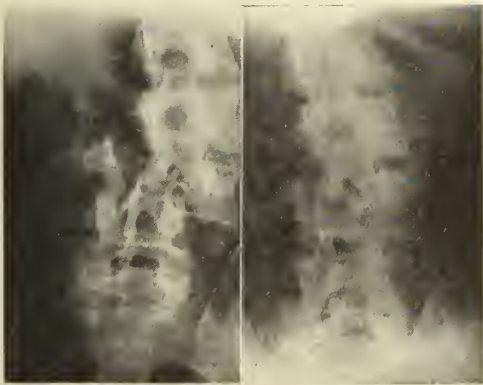


Fig. 3. Severe fracture dislocation before and after manipulation.

although his immediate paralysis was complete.

There is one complicating injury which I wish to call to your attention and that is a rupture of the nucleus pulposus and laceration of the intervertebral disc, the so-called Schmorl's disease. This develops after injury to the spine more often than we had previously thought and undoubtedly is responsible for many of the crippled backs

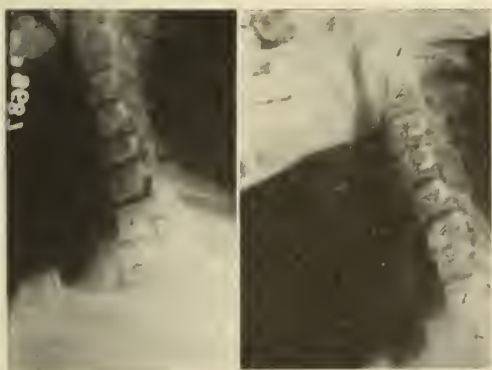


Fig. 4. Schmorl's disease with fusion. Also note that all cervicals and first and second dorsals are shown with x-ray technic described.

which present themselves without adequate x-ray evidence of injury to the bony structures. This complication often necessitates a later surgical fusion of the involved area to relieve pain. In the case shown (Fig. 4) the disc has been completely destroyed and bony fusion has taken place

between the adjacent vertebrae. This, however, does not always occur and if the disc is torn and fusion does not take place surgical relief is indicated. Patients with low back injuries, when first allowed up after being in a cast or a frame for six to twelve weeks, depending on the extent of the injury and the age of the patient, should be protected for several additional months with a rigid back brace of the hyperextension type with metal crutch arms which keep the back at least partly hyperextended, and which force the body weight to come down on the articular processes rather than on the bodies of the crushed vertebrae. We have also found the large hydrotherapy tanks of inestimable value in beginning movements, because the more or less paralyzed legs and weakened back muscles are supported by the water. Movements are made easily in this way, and not only are the weakened structures benefited by it but the patient's confidence is remarkably restored by discovering for himself that movement is not impossible. We also feel when partly paralyzed patients are placed on their feet with or without braces on the legs that they are safer to start walking in a walking frame of some type rather than with crutches, again for the psychologic reason that patients in walking frames cannot fall and do not have the subconscious fear of falling which they are so likely to have with crutches.

I wish to mention a few of the immediate complications of serious injuries to the spine. The first of these, of course, is shock, the treatment for which is so familiar to all of you that I will not mention it. The second is ileus, which almost invariably follows a major injury to the back and which often follows more or less minor injury and which may be an extremely troublesome and even fatal complication. Its treatment must vary as to the patient. We have found most useful, the inhibition of all fluids by mouth and the use instead of intravenous glucose with continuous hypodermoclysis, which may be carried out without discomfort if an ounce of one per cent novocaine solution is added to each liter of fluid. The use of a high enema tube and occasionally a small dose of eserine or infundin with the tube in place is valuable, and a simple remedy which has seemed to me to give a great deal of comfort in the continuous application of hot stupes to the abdomen. Another common complication is the inability to void. This always occurs in injuries with paralysis and often in injuries without paralysis. Experience has taught us that a permanent catheter with or without irrigation of the bladder, is better borne and with less likelihood of cystitis, than the two or three times daily catheterizing of these people with its resulting laceration of the



urethral mucosa and almost inevitable contamination of the urethra and bladder with organisms from the outside. In paralyzed patients or those partially paralyzed another source of grave danger and great discomfort both to the patient, the nurse, and the doctor is the development of decubitus. These terrific trophic ulcers over the buttocks, over the sacrum, and under the heels will oftentimes develop in twenty-four hours in spite of one's best efforts. Patients with paralysis especially should be guarded in every possible means against this catastrophe. Probably the best means at our disposal is the air mattress. If this is not available most rigid attention to the smoothness of the sheets, most careful distribution of the patient's weight so that large surfaces of skin take the weight instead of smaller ones, and the most rigid cleanliness, oftentimes will prevent or mitigate the development of these mutilations.

In summation, I have tried briefly to review, in a general way, the diagnosis and the treatment of injuries to the spine. I could not, in a paper of this length, go into any detail about the many serious accidents which present themselves in so many different forms. However, the principles of diagnosis and treatment, both temporary and permanent, are much the same in all types of back injuries, and will I think, in the near future, be given the attention that their adequate handling requires.

#### Discussion

**Dr. Douglas N. Gibson, Des Moines:** I believe that the medical profession as a whole is realizing more and more that there is such a thing as a fractured spine. As a result, we are treating this condition earlier and, consequently, are getting better results. Most men treat fractured spine—I mean those who do not know all the manipulative procedures—by hyperextension. I might say that I believe most of their hyperextension is inadequate, probably consisting, for the most part, of two or three pillows underneath the back, or an old-fashioned frame. It takes a good deal of angulation really to reduce your compression on an hyperextension frame. I believe the most adaptable one is that which can have its degree of angulation modified by some mechanical arrangement without removing the patient from the frame.

The method of reduction, of course, is a personal equation. Personally, I like the hyperextension frame; it does away with an anesthetic, and you can roll the patient over to take care of his back, if it is done carefully. I also believe that traction has a place in certain types of neck injuries. If the compression or dislocation is not severe, correction with traction upon the head can be accomplished.

There are two classes of back injuries, those that are suffered in industrial accidents, and those which are plainly the patients' personal responsibilities. I

feel that those which are associated with industrial work give supposed symptoms for a much longer period than those suffered in civil life. That has been brought out more and more this winter in a small series of broken backs that I have had. Five of them had no compensation connected with them at all. One of them had compensation connection. The five that did not are getting along very well. The other one is still complaining, and he had the least difficulty to begin with.

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### INJURIES TO THE HAND\*

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The amount of available time is too short to consider all injuries to the hands, and my information is too limited to cover the entire subject. Because of this, the injuries here considered will be limited to fractures of the metacarpals and phalanges, and still further limited to the minute details required in a satisfactory application of elastic traction for the treatment of these fractures.

Simple transverse fractures of these bones usually present no difficulty in the matter of reduction and treatment. When reduced, they tend to stay in position, and show only an angular deformity which is not difficult to correct. By proper padding of the splints, if board splints are used, or pressure in the right place while setting, if the injured member is encased in plaster, such fractures are usually handled with ease, and excellent end results are obtained. Comminuted or oblique fractures are more difficult. Reduction and maintenance thereof can be accomplished by some sort of traction, more conveniently by elastic traction than by other means usually. Ordinary splinting or the placing of the hand over some sort of roller, either of prepared metal or a bandage stick, is commonly not efficient and the result is shortening. In the metacarpals this leaves the hand deformed with the knuckles unevenly placed, sometimes with considerable disability. In the phalanges it is not uncommon to see a very crooked finger as the result of shortening.

To obtain elastic traction, or any other traction for that matter with only the fingers to pull upon, presents considerable difficulty. You have all

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tried adhesive tape and found that very little traction causes the adhesive plaster to creep. Due to this creeping replacement must sometimes be accomplished several times before the callus has sufficiently formed to prevent over-riding and deformity. Some years ago some genius advocated the use of the Japanese finger trap. I remember this toy from my childhood, and in the school yard it arouses considerable interest and amusement. As a means of traction, the interest is still present but the amusement is lacking. Theoretically the finger trap looks good, but my experience in its use in one case was quite sufficient. I can recall no method of obtaining traction that is quite as unsatisfactory as these same finger traps. It is true that the trap does not loosen. One can apply as much traction as he likes, but he will not like it long, nor will his patient. They are very uncomfortable and produce blisters and pressure sores. The lateral pressure in these traps is out of all proportion to the longitudinal traction exerted. This tends to produce security in the use of the trap but is the immediate cause of the disadvantages in its use.

At one period, some years back, I used the finger nail for traction. The flesh under the nail was pushed downwards, a hole was drilled in the nail through which was passed a very fine wire of stainless steel. This is an excellent method of obtaining traction if the nail will last throughout the required period of treatment. In those cases in which I used this method, the nail was pulled out about the time it was no longer needed for traction. This method now resides with others in my private junk heap of discarded methods of treatment. I have not as yet tried skeletal traction with calipers to the distal phalanx nor wires through the finger pads. In the application of elastic traction, I proceed in general as follows:

Stockinet of the proper size is rolled upon itself and carried to a point upon the arm close to the shoulder. Sodium silicate is applied to the skin with a brush and the stockinet rolled downward as the sodium silicate is applied. The elbow is bent to a right angle and care taken at this point to prevent undue pressure on the olecranon and constricting wrinkles in the antecubital fossa. The gluing with the sodium silicate and the rolling downward of the stockinet is continued to the wrist. When this is completed, plaster of paris bandages are applied from the upper limit to the wrist, the stockinet being folded at each end to make a smooth edge. No padding except this stockinet is used. This plaster of paris need not be very thick. When it has completely set, a stiff steel wire, about No. 9, is bent to form the banjo portion of this splint. This should project beyond

the fingers at least six inches and be about eight or ten inches wide. The entire curved portion should be bent back and forth in saw tooth fashion to provide places upon which to hook the rubber bands without slipping. The ends are laid alongside the arm over the plaster of paris and are securely fastened down with additional turns of plaster of paris bandage. While this is hardening the traction means may be attached to the fingers. In the beginning I purchased thin white gloves from the ladies' department of the stores and glued these on. These became difficult to get and were also somewhat expensive. At the present time I use narrow gauze bandages, three-fourths of an inch wide, cut in short lengths, paint the sodium silicate on the finger and lay on a strip of gauze, continuing this process until a sufficient number of strips have been applied to surround the finger. In order not to pinch the end of the finger one can use a small cork at the ends so that when the pull comes it will pinch down on the cork instead of the finger ends. When these are dried, small hooks made of wire are sewed into the gauze strips beyond the little cork. These hooks are better than rings which I used at one time because it is much easier to apply, adjust and readjust the rubber bands. The band can be hooked, carried to the banjo wire, brought back to the hook and snapped on. It is better to use one-eighth or one-fourth inch rubber bands quite long rather than to use short stout bands. Traction can be more easily graduated and the resulting pull will be much more even and satisfactory. As many bands may be applied to each hook as the requirement for tractive force demands. It may be necessary to split the plaster encasing the arm because of swelling. It may be necessary in some cases to remove the dressings entirely, replacing them when the swelling has gone down. Depending upon the degree of injury, the application of this traction means may need to be delayed for a week. In any case, where this piece of apparatus has been applied and traction is being exerted, that part of the hand and wrist remaining uncovered by plaster of paris or sodium silicate may need to be padded with cotton and tightly bandaged in order to prevent swelling and discomfort. Blisters not uncommonly arise at the edge of the dressings glued on by the sodium silicate. Snug bandaging tends to decrease the formation of such blisters.

The application of this type of banjo splint permits great flexibility in the angles at which the wrist, hand and fingers may be held. The wire may be bent in any direction. The shape of the circular portion may be altered. It may be bent downward to provide a different angle of pull for



the thumb than the fingers. Although it is not common, fitting closely to the joints as they do, now and then the dressings become loose on the finger. When this occurs they may be replaced while the finger is kept taut by some other means, the elastic traction being readjusted after the repair. This dressing allows almost complete freedom for roentgen examination without the necessity of the rays passing through plaster of paris.

#### Discussion

**Dr. John T. Hanna, Burlington:** Fractures of the metacarpals usually result from a blow such as is administered in hitting the other fellow on the head. The frequent over-riding may be corrected in the simpler cases by traction of the finger attached to the broken bone and dressing the hand over a spindle with immobilization maintained by adhesive plaster. The thumb need not be included unless the first metacarpal is involved. If the over-riding cannot be corrected by simple traction or dressed over a spindle then some form of traction by the use of rubber bands either on a flat ventral splint extending from the middle of the forearm to well beyond the finger tips, or a banjo splint, should be applied. Proper alignment of the fragments may be maintained by applying securely soft rubber tubes on each side of the fractured bone. Early removal of the splint because of the possibility of adherent tendons too frequently results in bowing of the metacarpal. A better course of procedure is to obtain a good bony union and then later to loosen the tendons surgically.

Fractures of the phalanges usually result from direct trauma. Slight traction is required for reduction. Retention of the reduced fracture is accomplished by a palmar splint to which the finger is attached by adhesive. A fracture in the proximal phalanx may do better if dressed over a spindle. Compound fractures are particularly important because of the danger of infection in the tendon sheaths. Passive motion may be instituted early in contradistinction to the fractures of the metacarpals. The dropped finger tip is in reality a laceration of the extensor tendons where they fuse to the joint capsule. The finger tip should be dressed in hyperextension if the injury is fresh. Old injuries require suturing. In any phalangeal fracture resulting in a stiffened finger, arthroplasty should be attempted before amputation. The writer a few years ago encountered a spiral fracture of the proximal phalanx which while uniting persisted in unwinding with consequent marked deformity as healing progressed. Several reductions were made without permanently correcting the deformity. The bone was then permitted to heal with the deformity. A dorsal slit in the skin was made, the bone sawed in two, the twisted finger straightened and union was obtained with a normally functioning finger.

### THE DIAGNOSIS OF THE MORE COMMON FORMS OF PARALYSIS\*

F. J. ROHNER, M.D., Iowa City

At the request of Dr. John C. Parsons, chairman of this section, I am attempting to give something which may be of practical value to the general practitioner.

To refresh your memory I will give a brief review of the anatomy of the motor nervous system and to a lesser degree of the afferent pathways of the spinal cord. The motor system consists of two neurons, the upper and the lower. The upper has its origin in the cortex, the fibers passing down the internal capsule, through the midbrain and pons and decussating to the lateral column of the opposite side in the pyramidal tracts. The second motor neuron begins at the anterior horn and runs out to the muscles supplied. The anterior roots and the posterior roots of the spinal cord join to form the peripheral nerve. The afferent nerves enter the posterior root ganglion and have various pathways or tracts to the cerebral cortex, optic thalamus, cerebellum, etc. The deep sensations, paresthesia, two point discrimination, and position sense, and also part of tactile sensation travel up the posterior columns. The lateral columns contain the cerebellar tracts, part of tactile sensation and also tracts which are a part of the extra pyramidal system. (The lateral columns also contain the efferent pyramidal tracts, as previously mentioned.) Pain, and thermal sensations are carried up close to the central canal on the contralateral side.

To begin with, I might say that paralysis should be differentiated from muscular dysfunction due to myopathies, dystrophies, pain, etc. Paralysis is usually self-evident, but occasionally has to be searched for. This is particularly true of mild cases of anterior poliomyelitis and in hemiplegia associated with coma. It must be remembered that paralysis is not a disease in itself but is evidence of some lesion in the motor pathways. Paralysis may be slight, often spoken of as paresis, or it may be complete. Paralysis unassociated with any evidence of involvement of other parts of the nervous system will be referred to as "pure paralysis." In general, one may say that paralysis which comes on suddenly or rapidly is usually due to an infectious lesion or some vascular accident, while paralysis which comes on chronically or slowly is usually due to a degenerative or sclerotic process, or to new growths. This paper does not include paralysis of congenital or familial types.

I am going to take up the subject in the following manner, mentioning many and discussing

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briefly only the more common types of paralysis. In the first group will be considered those purely motor diseases, which are further divided into three sub-groups:

I. Motor Diseases.

A. The upper neuron

B. The lower neuron

C. A combination of upper and lower neuron types

A. The symptoms of an upper motor neuron lesion are usually spastic paralysis, increased deep reflexes, loss of abdominal and cremasteric reflexes, and the presence of Babinski's sign and other toe phenomena. There is no atrophy except that of a slight degree due to disuse, and there is no reaction of degeneration. By far the most common type in this group is hemiplegia or paralysis of one side of the body opposite the lesion. It is often difficult to determine which type of lesion is responsible for the hemiplegia. The lesion is most commonly in the midcerebral artery and may be due to hemorrhage, thrombosis, or embolism. It is often difficult to determine which type of lesion is responsible for the condition. Generally speaking, in hemorrhage the symptoms occur suddenly, consciousness is lost, and there is a history of a high blood pressure. In thrombosis, as a rule, the onset is more gradual, consciousness is not lost, and this type is usually associated with conditions producing low blood pressure. In embolus the onset is sudden, consciousness is lost for only a brief period, and the condition is usually associated with endocarditis of the mitral valve or may be due to a sterile embolus in cases with auricular fibrillation. Hemiplegia in an old person is usually due to hemorrhage or arteriosclerosis; in middle age it is frequently due to syphilis; and in the young to an embolus. Spasticity and increased tendon reflexes are usually absent for the first two or three days, but are soon followed by typical spasticity, increased reflexes, etc. The transient paresis, as often seen in high blood pressure, should be mentioned, and is best explained on the basis of either localized cerebral edema or vascular spasms.

B. The symptoms of the lower neuron group are flaccid paralysis, decreased or absent tendon or deep reflexes, atrophy and reaction of degeneration. These latter take time to develop. This group includes Bell's palsy, anterior poliomyelitis, Landry's paralysis, progressive muscular atrophy and Bulbar paralysis.

*Bell's Palsy*, as you know, is not uncommon and is a paralysis of the seventh cranial or facial nerve. It is differentiated from supranuclear lesions by the fact that the entire face, including the forehead, is involved in Bell's Palsy, while the forehead escapes in supranuclear lesions.

*Anterior poliomyelitis* is a disease of children

and young adults, occurring in the summer months in epidemic, occasionally sporadic form and associated with or preceded by a mild degree of fever. Dana says, "The diagnosis can easily be made in almost all cases by remembering these facts: the age of the patient, the abrupt onset, the rapid development of paralysis, the tendency to improve, and the absence of anesthesia or sphincter involvement." The spinal fluid early shows a pleocytosis of polymorphonuclear leukocytes and later of lymphocytes.

*Landry's paralysis* is a rare, rapidly ascending paralysis, associated with fever. It is frequently fatal.

*Progressive muscular atrophy* is a very chronic disease usually beginning in the small muscles of the hand and gradually spreading to the arms and shoulders. Involved muscles show fibrillary twitching, which phenomena precede the atrophy.

*Bulbar paralysis* is considered by many as the same disease, but involving the lower cranial nerves, the ninth, tenth, eleventh, and twelfth. Occasionally the disease involves the eye muscles, producing chronic ophthalmoplegia. Bulbar paralysis and chronic ophthalmoplegia may be part of the disease about to be described under the next group.

C. The only disease represented in the combined upper and lower neuron group is anyotrophic lateral sclerosis, which is characterized by spasticity of the lower extremities and flaccid, atrophic paralysis of the upper extremities. Syringomyelia and chronic cervical pachymeningitis, two diseases which closely simulate anyotrophic sclerosis are considered in the next group.

It is to be remembered that so far we have considered nothing but purely motor diseases.

II. Paralysis Associated With Other Lesions of the Central Nervous System.

A. Posterolateral sclerosis is a disease in which the posterior and lateral columns of the spinal cord are involved. Symptomatology referable to the posterior columns would consist subjectively of numbness and tingling of the extremities, and objectively of decrease or loss of the deep sensations, pallesthesia, position sense, and two point discrimination, and occasionally, sphincter involvement. Symptoms referable to the lateral columns are ataxia, incoordination, Rhombert's signs, and the spastic type of paralysis. This condition is almost invariably associated with pernicious anemia. It may precede or follow the anemia. These patients often have the atrophic tongue and the achylia found in pernicious anemia. The condition which most closely simulates the disease and is most frequently mistaken for it is *tabes dorsalis*. *Tabes* rarely, if ever, gives a Babinski's sign, while



this condition frequently does. Tabes is usually readily ruled out by a negative Wassermann reaction and the spinal fluid.

B. Multiple or disseminated sclerosis is a disease usually occurring between the ages of 20 and 40, caused by patches of sclerosis, as its name implies, scattered throughout the central nervous system. It is characteristically subject to relapses and remissions. Remissions may last for months, even years, during which time the patient may seem apparently normal. So protean is its symptomatology that it may simulate any disease of the central nervous system. Hemiplegias, monoplegias, paraplegias often associated with intention tremor, ataxia, nystagmus, diplopia, scanning speech, pallor of the optic discs, and optic atrophy are not uncommonly found. These cases, sooner or later, terminate in complete spastic paralysis. The condition is often simulated by cerebrospinal syphilis, but the lack of remissions and a positive Wassermann reaction solve the diagnosis. It might be mentioned here that during a relapse there may be a pleocytosis of the spinal fluid. A paretic gold curve is not uncommon. These cases when seen early are often diagnosed as hysteria, because of their youth and apparent indifference to the seriousness of the condition, plus a certain degree of euphoria. However, if nystagmus or a positive Babinski's sign can be demonstrated it practically rules out hysteria. Encephalitis often simulates multiple sclerosis, and it is frequently difficult to differentiate between these two conditions.

C. Myelitis usually occurs in association with an infection of some type. It may be complete or incomplete. If complete, everything is lost below the level.

D. Syringomyelia is very rare. Usually the lesion is in the cervical region. It gives a flaccid paralysis of the upper extremities and spasticity of the lower extremities. The characteristic finding is loss of pain and thermal sensations, with retention of tactile and other sensations.

E. Hematomyelia gives the same symptomatology, but usually follows trauma to the spine.

F. Chronic cervical pachymeningitis is usually due to syphilis and produces symptomatology similar to that of syringomyelia or cord tumor. There is usually no dissociation of sensation as in syringomyelia, however. The Wassermann test and the examination of the spinal fluid clear up the diagnosis.

### III. Paralysis Associated with Neuritis.

The symptoms are those of a lower neuron paralysis and objective sensory disturbances. The history is a great aid in giving a clue. Sometimes it is difficult to differentiate these cases from those in Group II, i. e., paralyzes associated with sensory

central nervous system involvement. It is important to remember that in central nervous system involvement the sphincters are frequently affected, in peripheral neuritis, never. The following résumé of the various forms of neuritis is taken from Blumer's *Bedside Diagnosis*, Volume III, contributed by E. Bates Block.

"It is important to determine whether the neuritis is mechanical, chemical, infective, toxic or nutritive.

1. Under mechanical or traumatic neuritis crutch paralysis is not uncommon. Occupation neuritis occurs chiefly in artisans from constant trauma of the nerves in using tools, sewing machines, etc.

2. Chemical neuritis is rarely due to copper, zinc, mercury, carbonic oxide, carbon bisulphide (in rubber factories) aniline, phosphorus, nicotine, meat or sausage poisoning. It is quite common from alcohol, lead and arsenic.

3. Infective neuritis may follow acute infectious diseases, fevers, syphilis, malaria, erysipelas, typhoid fever (tender toes), influenza, septicemia, focal infections, gonorrhea (chiefly lower extremities), tuberculosis, sunstroke and the puerperium. These are usually of the polyneuritic type.

4. Toxic neuritis occurs not infrequently in diabetes and gout.

5. Nutritive neuritis includes those cases due to anemia, cachexia, or senility (arteriosclerosis) and especially beriberi and pellagra (avitaminosis).

"Bearing in mind the seat of the lesion in multiple neuritis, from different causes, may prove helpful in the diagnosis. Generally speaking, the following distribution is observed: alcoholic, chiefly feet; lead, chiefly wrists; arsenic, all four extremities; beriberi, all four extremities; pellagra, all four extremities; diphtheria, palate, rarely all four extremities; and puerperal, ulnar and median, sometimes all four extremities."

### IV. Hysterical Paralysis.

This condition was considered somewhat in the diagnosis of multiple sclerosis. There are no pathologic reflexes in hysterical paralysis. Patients during sleep or under anesthesia will use the paralyzed muscles. The paralysis is usually associated with anesthetics which cannot be explained on an anatomic basis. Occasionally multiple sclerosis and hysteria may be combined.

### V. Paralysis Agitans.

This is not a paralysis at all, but is included in this paper because of its name. It is a disturbance of the extrapyramidal system in elderly people, characterized by muscular rigidity and tremor. Closely simulating it but occurring in younger people and involving the same system is the Parkinsonian type of encephalitis. Closely allied to it also is the senile tremor of old age.

NEW THERAPEUTIC AGENTS AND  
THEIR PRACTICAL VALUE IN  
OTOLARYNGOLOGY\*

JOHN A. THORSON, M.D., Dubuque

I shall try to present in this paper some of my recent experiences under the above heading.

*Conservative Treatment of Acute Sinusitis  
in Children*

You will recall that in children with sinusitis, the ethmoids, or the ethmoids and antra, are usually the offenders. Occasionally a patient is referred for an immediate operation because of swelling around the inner canthus, extending to the eyelids. No induration of the orbital tissue, and no interference with the motility of the eyeball are found. The swelling is due to pressure from the yielding lamina of the ethmoid, and not to a supposed orbital extension of the infection.

Greenfield<sup>1</sup> has shown, that with carefully executed x-ray pictures, the bulging of the ethmoid cells can be demonstrated in many cases. Conservative treatment is indicated. The patient is hospitalized, if possible, and immediately five to ten minims of one per cent ephedrine, in normal saline, is instilled into the nostril of the affected side, three times a day, with the patient in the Parkinson<sup>2</sup> lateral head-low position. The patient lies on his side with the head over the edge of the bed; or sits on one side of a stack of two or three pillows, upon the crest of which his shoulder is placed, while his head rests along the other side. The lower arm with the elbow flexed rests beneath him; the patient breathes through his mouth to avoid snuffing fluid into the pharynx. In either case, with the body in a strictly sidewise position, the head is downward so that the cribiform plate is nearly parallel with the floor. A small child or infant can readily be held in this position, and the mouth kept open while the drops are instilled. The position is maintained for from three to five minutes, and then the head is turned face down so that the solution may run out and not be swallowed. This may be followed by gentle mass suction; obstructing secretion in the nostrils may be removed by suction with a small fenestrated catheter. Iced compresses over the affected sinuses are used.

This painless treatment is certainly most acceptable to a child. All instrumentation is avoided, and with care none of the solution runs into the throat. In this position the regions of the ostia, located in the upper half of the nares, are reached by the shrinking solution; it is at once useful and harmless. Ephedrine solution does not disturb ciliary

activity;<sup>3</sup> unlike colloidal solution it does not clog the streams of mucus.<sup>4</sup> According to Gaul and Staud<sup>15</sup>, "It must be emphasized that within the past year, following intranasal applications with argyrol and neosilvol, in fifteen children under ten years of age, anargyrosis developed. Ten of the fifteen children were girls."

The same method promotes ventilation and drainage in acute rhinitis and thereby gives the patient maximum comfort, with no disturbances of physiology. In the observation of fifteen infants and run-a-bouts, over a three and one-half year period, Davis<sup>5</sup> used the following kinds of nasal drops for colds; argyrol and neosilvol, ten per cent; camphor and menthol in albolene; two per cent mercurochrome; and 1:7500 potassium permanganate. She found that all caused discomfort, increased and prolonged nasal discharge and pharyngeal irritation.

*Suggestions in Management of Chronic  
Sinusitis*

The majority of children with a constant, or intermittent mucopurulent nasal secretion, are not relieved by the removal of tonsils and adenoids. I have realized my own mistake in several of these cases, and consequently now make a thorough x-ray study of the sinuses before proceeding with any surgical treatment. Tonsillectomies and adenoidectomies are performed as usual, but at the completion thereof, the cloudy antra are punctured, and irrigated with normal saline solution. In many cases this is sufficient treatment.

An illustration is a patient, a girl, four years of age, who was operated upon in 1932 for acute mastoiditis. Before and after the operation she had frequent colds and exacerbations of colored discharge from the nose. In the spring of 1934, I removed her tonsils and adenoids. Her symptoms persisted, and in December she developed an abscess in the previously operated mastoid. Prior to reoperation, an x-ray showed complete blocking out of the antra. At the time of reopening the mastoid, both antra were punctured and irrigated with normal saline. Large clumps of mucopus were removed. Two months later an x-ray of the antra showed them well aerated. Her nose was "dry" for the first time since 1932.

*Intratracheal Anesthesia*

In intranasal operations performed under a general anesthetic, the intratracheal inhalation method is the one of choice. Personally I find it very desirable, safe, convenient, and time-saving in all head operations requiring general anesthesia. Chevalier Jackson<sup>6</sup> states that this method is by far the safest way for the administration of ether for any purpose; that it is indicated in opera-

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tions in which there is a possibility of excessive bleeding, and aspiration of blood or secretions, and in which it is desired to keep the anesthetist away from the operating field. I have found it especially useful in sinus surgery on cases of bronchiectasis, or chronic bronchitis where pulmonary secretions can be periodically aspirated during the operation. Clean, careful work may be done without haste or interference. The children are readily carried on nitrous oxide, with only a trace of ether at the start to facilitate introduction of the catheter. Temporary bleeding may be disregarded, because the pharynx is packed with gauze lightly impregnated with albolene. When a general anesthetic is desired, the same method may be used in adults. It is again especially useful in lung suppuration. When gas anesthesia is preferred, the intratracheal catheter is introduced first under local anesthesia, as in bronchoscopy. If complete absence of straining and coughing is desired, a supplementary anesthetic is necessary. Rectal instillation of avertin, 80 milligrams per kilo body weight, is very effective, decidedly so where the operation is of long duration.

#### *Uses of Bacteriophage in Otolaryngology*

Excluding allergic cases, children having a persistent mucoid or mucoserous nasal secretion for more than two weeks, but not having repeated severe colds, with exacerbations of yellowish nasal outflow, are arbitrarily considered cases of chronic rhinopharyngitis. On examination they have a "wet nose," swollen, sodden mucosa, often of a purple-grayish color. They may have congested tonsils, and usually have enlarged adenoids. Many of them have a well-balanced diet. They have usually been the victims of various nasal drops. Those that do not improve, when all nasal medication is discontinued, are given catarrhal lysate, seven or eight drops into each nostril, twice daily, for a period of ten days. These drops are instilled with the patient in the Proetz (head extended) position, so that the medication will cover a large intranasal area, and also the surface of the nasopharynx. The results have been very encouraging, and in a few cases spectacular. If the treatment is effective, the patient will have a dry nose in a week. The action is probably one of local vaccination. Walsh and Cannon<sup>7</sup> found that, by repeated intranasal instillation of typhoid-paratyphoid vaccine, they were able to develop specific agglutinins in rabbits. The highest content was demonstrated in the blood, next in the nasal mucosa, wherein there followed a high titer after six days. Accumulations of leukocytes, macrophages, mononuclears, and hyperplasia of lymphoid tissue, were changes appearing in the subepithelial tissue. In two hundred human subjects, Larkum<sup>8</sup> found that persons

receiving one dose of lysate (bacteriophage), showed agglutinin titers equal to those receiving an equivalent dose of vaccine, but that the bactericidal power of the blood and the opsonic index were higher in those receiving bacteriophage.

In staphylococcus abscess of the face, where surgery is contraindicated, specific lysate injected frequently into the unyielding fibrotic process often produces a rapid (twenty-four to forty-eight hours) liquefaction, and permits drainage.

In membranous pneumococcal pharyngitis, where the process is limited to the nasopharynx, specific lysate has been the most effective form of treatment. All nasal medication is discontinued, and two cubic centimeters of pneumococcus lysate are instilled through the nostrils every three hours, with the patient's head held in an exaggerated extension, so that the fluid will be pooled in the nasopharynx for ten minutes. In twenty-four hours the membrane becomes translucent and dislodged over the central portion of the nasopharynx. In the more extensive type, involving the tonsils and entire pharynx, polyvalent antipneumococcic serum should be given intravenously in substantial doses regardless of the type of the causative organism. If the serum is ineffective the patient will die. Henderson<sup>9</sup> reports on eleven patients, ten of whom died. The one that survived had a positive blood culture of Type I, and was given Type I serum. All the others were Types III and IV and were not given serum.

I saw a railroad conductor, forty-seven years of age, who had, two days previously, suddenly developed a very sore throat, chills, and marked prostration. On the following day he was unable to swallow water, and a physician gave him 10,000 units of diphtheria antitoxin. There was a dirty grey membrane surrounded by marked congestion, and edema of both tonsils, posterior pillars, and pharynx; the left tonsillar area was bulging, and a smear showed pneumococci. A typing was ordered but never reported. As soon as fluid reached his throat he gagged violently. On the fourth day his temperature was 103.5 degrees, pulse 102, and white blood count, 19,000. The following treatment was given: mouth wash; ice collar; 1,000 c.c., 2.5 per cent glucose by hypodermoclysis every six hours, M. S. gr. 1/4 every three hours. He grew gradually worse, and became delirious at midnight. At 4:00 a. m. his temperature was 104.5 degrees, pulse 150, and respirations 35. His breathing was noisy, but there was no cyanosis. As a last resort he was given 10,000 units of Felton's polyvalent antipneumococcic serum intravenously. His temperature and pulse dropped abruptly to 101.5 and 100 degrees respectively in twelve hours. He gradually improved and went home on the sixth hospital day.

## DIET

The following three points deserve emphasis:

1. History taking is our only safe method of arriving at a proper plan of dietary treatment, and in many cases, as Moose<sup>10</sup> has shown, is the only means of making a proper diagnosis.

2. Intranasal or oral signs cannot be relied upon for a diagnosis of nutritional disturbance; they must not be used as a short cut to replace tedious, but reliable history taking.

3. Vitamin A is not the anti-infection vitamin.

A boy, nine years of age, with marked obstructive dyspnea, had been bleeding from the gums, tonsils, and trachea, for twenty-four hours following a slight contusion of the lip. Subepithelial hemorrhages covered his body, oral cavity, and pharynx; a few were found in the conjunctival sac. Eye grounds, ears, and nose were negative except for moderate pallor of the nasal mucosa. The blood count showed a fairly marked secondary anemia (hemoglobin, 65 per cent) and a marked depression in the number of platelets (40,000). The oozing persisted in spite of various treatments for seventy-two hours. Finally he was given extract of blood platelets in large doses by mouth, intramuscularly, and topically applied to the gums. In fifteen minutes the oozing had completely ceased. On the following day his platelets numbered 194,000. He recovered rapidly and now after two months, is playing and working hard. The family and past histories were decidedly good. His only other illness was measles at two years of age. A survey of his diet revealed that he ate no vegetables and no fruit, except an occasional apple. To date, I believe that this was a nutritional disaster, probably due to a lack of minerals and Vitamin C. Forty-eight hours of distress and anxiety, to say nothing of the time for convalescence, would probably have been saved the patient, the parents, and four doctors, if an immediate investigation of the patient's food intake had been made. Presnell<sup>11</sup> has very recently discovered that in experimental animals receiving insufficient quantities of Vitamin C, the number of platelets decreases and anemia occurs. This suggests that the bleeding in avitaminosis C may be caused not only by changes in the vessels, but by alterations in the blood.

You are well aware that much has been written concerning the color of septal mucosa as an index to the acid alkali balance of the body. Bernheimer and Cohn<sup>12</sup> found no correlation between the color of the nasal mucosa and symptoms of acidosis, in fifty patients with hyperpnea, dehydration, and acetoneuria. They found in one hundred normal persons, and in twenty patients with various diseases, but normal hydrogen ion concen-

tration in the blood, all three types of septal mucosa—pale, normal pink, and scarlet. They found that the color of the septal mucosa was influenced by age, atmosphere, complexion, alcoholism and body temperature. Diets with drugs, both alkali and acid ash producing had no effect on the color of the mucosa.

Great stress has been placed on the importance of Vitamin A as a cure for respiratory infection. It has been named the anti-infection vitamin. In the study of self-selection diet in fifteen children from infancy to five years of age, during three and one-half years, Davis<sup>13</sup> found that large amounts of Vitamin A rich foods failed to have any influence on the incidence of colds; that a positive alkaline dietary balance of two to one was the rule, and that those with the greatest intake of alkali-ash foods throughout the period, fared no better. In a recent case of nutritional zerophtalmia<sup>14</sup> (Vitamin A deficiency) protracted over a period of six years, the patient gave an absolutely negative history for respiratory tract infections. Examination revealed no oral, nasal or postnasal signs, such as the so-called characteristic lymphoid hypertrophy, that could be called diagnostic. There were a few whitish plaques on the inner surface of the lower lips, together with a slight grayish pallor of the mouth, nose, and pharynx. Every winter for six years, during a seasonal exacerbation, he had sought medical aid. If some one had thought of the simple matter of diet history, he could have been saved a great deal of expense, suffering, and sight.

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### Discussion

Dr. S. A. O'Brien, Mason City: Swelling and redness around the inner canthus and lids do not bear the significance in young children that they do in adults, and I agree with Dr. Thorson that we are safe in carrying out conservative treatment for a longer period of time in children. With the younger children however, I prefer heat to cold. We have all had the experience of a nasal discharge continuing after removal of tonsils and adenoids. While I do not like to open acute antra at the same time I remove the tonsils and adenoids, I do not hesitate to do so where the discharge has persisted for some time; at least I puncture and irrigate the antra.

I am in accord with intratracheal anesthesia but I do not like avertin in any cases where there is danger of bleeding. The anesthesia lasts several hours and the fact that the patient is swallowing blood will not be noticed by the nurse.

I have not used vaccines locally in the nose and nasopharynx as Dr. Thorson has, but I cannot see what action would take place which would have any influence on the discharge. In the few cases in which we have used Felton's polyvalent serum we have not been overly pleased with the results. In the Type I serum the results have influenced us to use it again. If serums are to be of any benefit they must be given early before an extensive septicemia has developed.

Dr. Thorson speaks also of using specific lysate injections of staphylococcus infections of the face. While the x-ray is not considered a new therapeutic agent, the different methods and improvements in its use can be so considered. In these infections of the face and neck, x-ray treatments intensify the pain and elevation of temperature for two or three hours, but this is followed by marked relief of pain within a few hours, the induration disappears, and in twenty-four to forty-eight hours the lesion appears to be sharply localized. It drains through a single opening, and there is a minimum scar formation. We have found the same to be true in the treatment of erysipelas. One treatment daily for three days will usually show a temperature fall to normal at the end of the third day, and it is exceptional for a high temperature to extend over eight days. In using the x-ray small doses are as effective as large ones so that they can be given in the homes with a portable machine.

Dr. Cecil C. Jones, Des Moines: First let me say that I agree thoroughly with everything covered in Dr. Thorson's paper. There is no need of rehearsing his conclusions in order to emphasize them. Therefore, I shall mention a few therapeutic aids he has not discussed, which have proved effective in my experience.

What are the most common causes of delayed healing, postoperatively, of uncomplicated mastoids? First, too much curetting in the region of the antrum, particularly the inner plate of the outer wall of the aditus. If necessary to follow the zygomatic cells forward do not remove the inner table. Second, be

careful not to overlook deep digastric fossa cells behind and mesial to the sigmoid sinus. Third, take the stitches out early, on the third or fourth day, to avoid stitch abscesses. On removal of the drainage tube do not pack with gauze nor probe the wound, but remove the retained secretions by massaging with the auricle against the wound.

In children large quantities of Hartman's solution subcutaneously pre and postoperatively are effective in sustaining their combative forces.

Almour has demonstrated that it is not necessary to chisel out an eburnated tip but only necessary to eradicate thoroughly the diseased bone. If a cholesteatoma exists, remove it by irrigating with carbon tetrachloride in order not to disturb the epithelial matrix. It is most important that a very large meatal opening be made.

Now about nasal surgery. Since it has been proved that normal ciliated epithelium regenerates following a Caldwell-Luc, and that this regeneration takes place from the tissue about the ostium, it follows that this tissue should not be removed nor curetted. Moreover, it is not necessary to make a mucosal flap for the antero-inferior nasal window. It is not necessary to pack the sinus nor to suture the gingival incision. The less done postoperatively, the better it will heal.

Nothing has been said by the essayist about electrocoagulation. I feel that it is the procedure of choice in the removal of small lymphoid masses in the tonsillar fossae or on the pharyngeal wall. Likewise it is the superior method of removing polypoid degenerations of the posterior tip of the inferior turbinate. It cannot be recommended as a mode of removing tonsils.

At present allergy is such an important factor in the differential diagnosis of our nasal cases that it is worthwhile to emphasize the fact that eosinophils occur in the nasal smears of some chronic nasal infections as well as in allergic cases. Therefore the presence of a nasal eosinophilia does not necessarily make a diagnosis of allergy with nasal manifestations. In some quarters ionization is being heralded as a mode of treating allergic nasal conditions. I have used it in a few instances but have not reached any definite conclusions.

### CLINICAL NOTES FROM THE COLLEGE OF MEDICINE

#### IDIOPATHIC AMYLOIDOSIS

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From the Department of Internal Medicine

Amyloid is deposited in certain organs of the body during the course of many diseases. It occurs most commonly as a complication of long standing pyogenic infections and of tuberculosis, especially when these involve bone, joints, lung or pleura, so that it is frequently associated with

chronic osteomyelitis, empyema and tuberculous cavitation of the lung. In addition to the above infections, it has been found with tertiary syphilis, chronic malaria and with delayed convalescence from infectious fevers. Amyloidosis may occur with non-infectious diseases such as carcinoma, multiple myeloma, Hodgkin's disease, cirrhosis of the liver and chronic nephritis, but these are less frequent etiologic agents than infection. That amyloidosis may be present in the absence of any recognizable cause, occurring as an idiopathic or primary disease, is not generally recognized.

#### CASE REPORT

A white male, fifty-seven years of age, was admitted to the University Hospital in March, 1933, because of weakness which had begun rather suddenly five months previously. Two months later a distinct pallor was noted and one month before admission the abdomen became distended. The weakness and pallor progressed steadily and the feet and ankles became swollen two weeks before admission. There had been nocturia three times a night for the preceding two years and more recently he had been troubled with urgency and some loss of bladder control. For about five years he had been troubled by hemorrhoids which bled profusely at times. He had been addicted to the use of moderately large amounts of alcohol for many years. There was no history of a syphilitic infection although he had had acute gonorrheal urethritis twenty years previously.

Physical examination revealed a dry skin and marked pallor but no icterus. The pupils were normal, the nasal septum intact, and no clinical evidence of syphilis could be found. There was no lymphadenopathy. The heart and lungs were normal in all respects and the blood pressure was 125/70. The abdomen was distended but no definite evidence of fluid could be elicited. The spleen was palpable and the liver extended five centimeters below the costal margin. There was no edema of the ankles. Rectal examination revealed internal hemorrhoids and a slightly enlarged prostate. An urethral stricture was present, and after dilatation a periurethral abscess formed and was drained externally.

The blood Wassermann reaction was negative. Free hydrochloric acid was present in small amounts in the gastric contents. Roentgenograms of the stomach, duodenum, colon and kidneys were entirely normal. The indirect van den Bergh reaction was very slightly increased and the blood urea, uric acid and creatinine were normal. The blood hemoglobin was 26 per cent of normal; there were 2,200,000 erythrocytes and 8,300 leukocytes with a normal differential count. The specific gravity of the urine varied from 1.004 to 1.019,

there were occasional granular casts, and one to four plus albumin was constantly present.

A definite diagnosis was not established and after several blood transfusions the patient returned home. Edema of the legs appeared and he was confined to bed most of the time because of weakness and edema. In October, 1933, the edema became extensive, the urinary output diminished, and on readmission to the hospital in December, 1933, there was generalized edema and ascites. The heart and lungs were normal and the blood pressure was 156/80. The liver extended fourteen centimeters below the right costal margin but the spleen could not be felt. The patient had a cerebral accident three days after readmission with a resultant right hemiplegia. By abdominal paracentesis 1,200 cubic centimeters of a milky fluid were removed and although drainage through the incision persisted for several days the ascites reaccumulated. The edema of the extremities subsided but did not completely disappear from the paralyzed leg. The patient died of bronchopneumonia.

During the last admission to the hospital the blood hemoglobin was 60 per cent and the erythrocyte count 4,420,000. The urine showed three plus albumin and a few casts, but no red blood cells. The nonprotein nitrogen of the blood increased until there were 6.5 grams of uric acid per 100 cubic centimeters, 35.7 grams of urea and two grams of creatinine. The total serum protein was 5.47 grams per 100 cubic centimeters with 1.98 grams of serum albumin, 2.95 grams of serum globulin and 0.54 grams of fibrinogen, representing a lowering of the albumin globulin ratio. There was no free hydrochloric acid in the gastric contents even after histamine stimulation.

Necropsy examination revealed a diffuse amyloid deposition in the spleen, liver, kidneys and adrenal glands. The spleen weighed 420 grams, was purplish-red in color and the cut surface was glistening in appearance. Microscopic sections showed the reticular cells compressed and infiltrated by the amyloid material. The liver weighed 4,000 grams and was yellowish in color. The cut surface had a greasy, glistening appearance and microscopic examination revealed a heavy deposit of amyloid between the liver cells and sinusoids, compressing and replacing the cells in some areas. Each kidney weighed 260 grams and on cut section had a yellowish appearance. The deposit of amyloid within the glomeruli was the most striking feature. The medullary portion of the adrenal glands showed a diffuse amyloid deposit with compression of the cells, and in the cortical portion it was deposited between the rows of cells. The pancreas was infiltrated with the same material. The iodine-sulphuric acid test for amyloid was



positive in all of these organs. The heart and coronary vessels were normal and the bone marrow was hyperplastic. The lungs showed an extensive patchy pneumonia.

The periurethral abscess was completely healed and no infection, suppuration, or malignancy could be found to account for the amyloidosis.

#### DISCUSSION

Amyloid is apparently a transformation product of tissue protein which is deposited in a soluble form. It is always extracellular and is transported to the organ or tissue rather than being synthesized in situ. Although amyloidosis can be reproduced experimentally in animals by the injection of various substances (proteins, casein, turpentine) as well as by bacteria and toxins, the actual cause of the deposition is unknown.<sup>1 and 2</sup> The composition of the material has not been accurately determined although it is known that starch and cellulose, from which the term amyloid is derived, are not present.

This substance may be deposited in almost any organ or tissue of the body, although certain structures are more prone to involvement. As a rule, the deposition is widespread, but certain cases may show either strictly localized accumulations or an involvement of one organ which is out of all proportion to the deposition elsewhere. The spleen is usually involved and becomes enlarged to a varying degree. The organ is firm, not tender, and preserves its normal configuration. Although splenomegaly is usually considered to be one of the cardinal features of amyloidosis, there are many cases in which the enlargement is not sufficient to render the organ palpable. Liver involvement is usually present but seldom leads to jaundice or ascites. Infiltration into the walls of the gastro-intestinal tract is frequent and may cause diarrhea and occasionally ulceration and hemorrhage. The adrenal glands are commonly involved giving rise to many of the symptoms of Addison's disease, although the pigmentary changes in the skin are not likely to occur. The extreme weakness, emaciation, hypotension and asthenia which are common in amyloidosis may be partly explained on this basis.<sup>3</sup> One case of generalized amyloidosis of the muscular system has been reported<sup>4</sup> in which the muscles of the heart, diaphragm, tongue, and gastro-intestinal tract, as well as the skeletal muscles, were the site of marked amyloidosis while the parenchymatous organs were uninvolved.

Renal involvement<sup>5 and 6</sup> of some degree is usually found and in certain instances the kidney may be the only organ involved. The clinical manifestations of the amyloid kidney will vary, but albuminuria is universally present. Therefore,

its absence is conclusive evidence that little or no amyloid is present in the kidney. A depletion of the plasma protein occurs with marked albuminuria and a consequent generalized edema, so that the clinical picture is similar to that of chronic nephrosis. In other cases, in which amyloid produces severe glomerular damage, evidences of renal insufficiency, nitrogen retention, uremia and an elevated blood pressure appear. Such patients present a picture similar to the terminal stage of chronic glomerular nephritis.

Intravenous injection of Congo red<sup>7</sup> and a determination of the rapidity of its excretion has been advocated as a diagnostic procedure in suspected cases of amyloid disease. Although this procedure is helpful, it is not a specific test for amyloidosis, since there is considerable variation in the amount of dye excreted and other diseases may cause its rapid disappearance from the blood stream.

The clinical manifestations of idiopathic amyloidosis are similar to those of the more common secondary form. The incidence is low but the condition should be considered in the differential diagnosis of unusual types of splenomegaly, hepatomegaly and albuminuria.

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### THE FINLEY HOSPITAL CLINICO-PATHOLOGIC CONFERENCES

#### A REVIEW OF THE MODERN PROBLEM OF BURNS

ANTHONY C. PFOHL, M.D., Dubuque

The prognosis of a burn depends on many factors. The type of burn, the extent of the burn, the site of the burn and the age of the patient are among the more important factors. It makes a great deal of difference, of course, whether we are dealing with a first, second, third, or fourth degree burn. A fatal accident is likely to follow a burn of the first degree involving two-thirds of the body, or a second degree involving one-third of the body surface in an adult or one-seventh of

the body surface in a child. All burns involving one-third of the surface of the body are serious. Burns of the face, mucous membranes, or genitalia are of more serious moment. Patients at the extremes of life do not tolerate burns well.

#### PATHOGENESIS

A consideration of the clinical course and pathology of the condition is essential to a discussion of treatment. Here we may consider first, primary shock; second, acute toxemia; third, septic toxemia; and fourth, healing.

1. Primary Shock. The immediate effect of a burn is to produce shock and this may be the direct cause of death. The answer to primary shock is still a debatable question. It is probably due to nervous origin. The patient at this time may be in great pain, he may be restless, he may have a subnormal temperature, the pulse may be rapid, and the respiration may be rapid. In a child vomiting and convulsions are common. If shock is controlled early and adequately it can usually be overcome.

2. Acute Toxemia. After the patient has recovered from shock he may be comfortable for a few hours. Ten to twenty hours later he may show signs of toxicity. He becomes restless and at times a bit stuporous, the temperature rises, he complains of pain, and nausea and vomiting set in. The amount of blood plasma poured out at the site of a burn is enormous and therefore there is great need for fluid at this time. As recent work has also shown a disturbance in the chlorine metabolism, this factor also has to be taken into consideration. Two main theories have been advanced as an explanation for the toxemia.

a. That there is a toxic product absorbed by the blood from the burned area and that this may be eliminated at least in part through the kidneys.

b. The second theory deals with changes in the composition of the blood.

Recently Aldrich has advanced the theory of the importance of bacterial invasion as the principal cause of symptoms formerly attributed to toxins produced in the burned skin.

3 and 4. Septic toxemia and healing are well understood and need no discussion.

#### GENERAL TREATMENT

First degree burns often require only local treatment unless the involved area is very large or the patient is very young. In ordinary cases it is necessary only to allay pain and protect the part from injury. Chemical burns are treated by washing first with copious amounts of water.

Neutralizing solutions may be used but these are not essential. If one wishes to use a neutralizing solution he may use a weak sodium bicarbonate or acetic acid solution, depending on whether he is dealing with a caustic acid or alkali. Tetanus antitoxin is often indicated and necessary. Extensive second and third degree burns present the greatest difficulty and we will confine our discussion from now on to these types. The immediate treatment of a serious burn or scald is the general condition of the patient.

1. Morphine must be given for pain.

2. Warmth must be provided.

3. At times stimulation is necessary.

4. Fluids are most important.

a. If possible they should be forced by mouth.

b. Normal saline may be given per rectum in the amount of 250 c.c. every four hours.

c. Subcutaneous fluid may be given but this route causes the patient considerable pain and restlessness.

d. The intravenous route is the best, either intermittent or continuous. In the continuous type a cannula is placed in the vein and normal salt, plus five per cent glucose, is given slowly over long periods of time, sometimes five or six days. In the intermittent type, 500 to 700 c.c. of a solution containing nine per cent sodium chloride and five per cent glucose is given two or three times a day.

e. At times transfusions are indicated.

5. A daily hemoglobin examination should be the rule. The rise of hemoglobin is the best clinical method for estimating the concentration of the blood. This is of practical value and will show whether the patient is getting the fluid which he badly needs.

#### LOCAL TREATMENT

There are three main types of local treatment that I wish to discuss; first, the ambrine treatment; second, the tannic acid treatment; and third, the gentian violet treatment.

1. *The Ambrine treatment* had its origin during and after the late war and is very efficient on tar and gas burns. The original compound called ambrine consists of a mixture of resorcin, oil of eucalyptus, olive oil, soft wax and hard wax. In this type of treatment the burn is washed with sterile water or warm normal saline and dried. Blisters are not opened. The ambrine is warmed and sprayed over the entire surface of the burned area. A thin layer of cotton wool is placed over this. The wound is dressed every day and later the blisters can be opened. The principle underlying this type of treatment is that of protecting



and splinting injured tissue, and controlling the pain. Ambrine contains no specific curative ingredients but acts entirely on a mechanical basis. While this type of treatment is still useful at times it has been more or less replaced by the tannic acid and gentian violet types of treatment.

2. *The Tannic Acid treatment* was originated by Davidson of the Ford Hospital in 1925. It marks an important step forward. Tannic acid coagulates the damaged proteins and prevents their absorption into the circulatory system. In consequence, the constitutional disturbances are minimized, pain is strikingly lessened and scarring is generally slight. Most important of all the mortality is reduced. The technic is as follows:

a. The patient is put to bed and the burned area is exposed.

b. If shock is present the foot of the bed is elevated and heat applied. If severe shock is present saline infusions are started at once.

c. Morphine or heroin is given for pain.

d. Under light anesthesia the burned area is cleaned, blisters are evacuated and all loose epithelium is removed. The area is rapidly cleaned with ether which exerts a drying effect. If oil or grease is present it will prevent the tannic acid from coming into contact with the tissue.

e. A warm aqueous solution of 6.0 per cent fresh tannic acid is applied in the form of a spray. If it is not fresh, gallic acid will be present and this will be inactive in precipitating or coagulating the protein. Drying is done by electric light bulbs arranged in a bed cradle. Spraying is done at intervals of one hour and is stopped when a thin coagulum is obtained. A light brown color is desired and usually appears in from eight to twelve applications. The tannic acid coagulum relieves the pain in a short time. The application is painless and the entire area is covered by a thin brown leathery coagulum. The production of infection is minimized. Also the coagulum acts as a splint and increases the healing of the tissue beneath.

f. The bed clothes are supported and the area is exposed directly to the air. If fluid accumulates under the coagulum it should be evacuated by producing openings in the coagulum. If sepsis does take place it is difficult to treat in the tannic acid method. Fortunately gross infections are rare, and if present usually cause sloughing and removal of the coagulum, or the coagulum can be softened with vaseline and removed. Never should wet dressings be applied over the coagulum for the presence of moisture tends to produce symptoms of toxemia. In cases which are not

complicated healing slowly occurs under the coagulum. In superficial burns healing occurs in eight to fourteen days. In third degree burns the formation of granulation tissue loosens the coagulum. This is left undisturbed until easily pulled off.

Recently Dr. F. W. Hartmann of the Henry Ford Hospital has recommended the use of hexylresorcinol 1/2000 in ten per cent tannic acid, and with four per cent glycerin.

3. *The Purple Dye Treatment or Gentian Violet.* This type of treatment was pioneered by Dr. Henry Aldrich of the Boston City Hospital in 1933. In investigating the bacteriology of burned areas he found that for the first twelve hours the burned areas were practically sterile. After the first twelve hours it was found that in one hundred per cent of the severely burned patients and in the large majority of the minor burns there could be grown from repeated cultures the beta hemolytic or the gamma streptococcus. The concentration of these organisms increased with the signs of sepsis until after forty-eight to fifty-six hours pure cultures of the streptococcus could be obtained. Positive blood cultures were found. He then decided that perhaps the best form of treatment would be one aimed at killing the organism thus sterilizing the burn. It has been shown that the aniline dye, gentian violet, is highly bactericidal against the gram positive organisms. It is readily soluble and the solution is sterile at all times. It is a specific antiseptic for the invading organism and it reacts with the burned flesh to form a thin, light eschar, tough but flexible. The technic is as follows:

a. When a patient is admitted with a fresh burn, unless it is covered with oil or grease, there is no need for preliminary cleaning. The dye in a one per cent solution is sprayed on the burned area immediately.

b. The usual procedures to combat shock are carried out.

c. The patient is put to bed and placed so that the burned area is uppermost. The burn is not covered with a dressing. The bed clothes are supported by a cradle and in the cradle light bulbs are placed.

d. For the first few hours gentian violet is sprayed on the burned areas every two hours. A light eschar is formed very rapidly. After the eschar is formed the patient is sprayed every four to six hours during the day. Any blebs that form are opened and the unstained portions then presented are stained. This treatment continues until healing is complete. If the burn is so deep and so extensive that skin grafting is going to be nec-

essary, the eschar is allowed to remain on the body for about three weeks, after which time it can be softened and removed by warm compresses of sterile salt solution. By this time the granulations have built up enough to graft, and, being sterile, they accept new skin readily.

#### PREVENTION OF CONTRACTURES

Contractures, of course, most commonly occur at the various joint sites, especially the axilla, the groin, the popliteal space, the antecubital fossa, the hand and foot. Therefore in the treatment of burns involving the extremities it is necessary that the joints be held in such a position that if scarring occurs it will not hinder joint motion.

The following points should be kept in mind:

1. If the axilla is involved the arm should be held in a position of ninety degrees or more abduction and in more or less external rotation. A good method is to fasten the hand to the head of the bed.

2. If the burn lies in the antecubital fossa the arm should be held in complete extension. If the burn lies on the posterior surface of the elbow, that joint should be kept in ninety degrees flexion.

3. If the burn is on the palmar surface of the wrist, the wrist should be kept dorsally flexed and the fingers fully extended. If the burn is on the dorsum of the hand or finger the reverse may be true.

4. If a burn occurs in front of the hip joint or groin the joint is held in a position of abduction and as much extension as is obtainable with the patient lying on the back.

5. If the face is involved early movements are encouraged such as wrinkling forehead, blowing out cheeks, etc.

#### SKIN GRAFTING

Skin grafting is often necessary. If the case has progressed to a point where the affected areas have been converted into granulating surfaces, treatment consists in aiding the healing of these lesions. The sooner healing is obtained the better the final result, for the ultimate scar is in proportion to the time granulations persist. Hence grafting is indicated in all burns which are too extensive for early epithelization for the remaining skin. Even if one can predict an unsatisfactory cosmetic result after grafting, a graft should be used because our chief object is to produce epithelization with a minimum scar. The remaining deformity can be corrected later by appropriate plastic procedures. The small deep graft is, in the majority of the cases, the type best suited. Thiersch grafts are useful occasionally.

#### AMERICAN COLLEGE OF SURGEONS SECTIONAL MEETING AT OMAHA, NEBRASKA, MARCH 11, 12, 13, 1936

The American College of Surgeons 1936 sectional meeting in Omaha, Nebraska, will be held on Wednesday, Thursday and Friday, March 11, 12, and 13, with headquarters at the Hotel Paxton. Participating states include Nebraska, Iowa, Wyoming, North Dakota, South Dakota, Minnesota, Kansas and Colorado. Some of the distinguished visitors who will be present on this occasion are: Dr. George Crile, Cleveland, chairman, Board of Regents, American College of Surgeons; Dr. A. W. Adson, Rochester, neurosurgeon, Mayo Clinic; Dr. Frank E. Adair, New York; Dr. Charles L. Scudder, Boston; Dr. Robert H. Kennedy, New York and Robert Jolly, Houston, superintendent, Memorial Hospital and past president, American Hospital Association. A cordial invitation to attend this most interesting meeting is extended not only to the Fellows and hospitals of the various states included, but to the entire medical profession at large.

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#### THE AMERICAN COLLEGE OF PHYSICIANS TO MEET IN DETROIT MARCH 2-6, 1936

The twentieth annual session of the American College of Physicians will be held in Detroit with headquarters at the Book-Cadillac Hotel, March 2-6, 1936.

Dr. James Alex. Miller, of New York City, is president of the College, and has arranged a program of general scientific sessions of great interest to those engaged in the practice of internal medicine and associated specialties. Dr. Charles G. Jennings of Detroit is the general chairman of the session, and is in charge of the program of clinics and demonstrations in the hospitals, medical schools and other Detroit institutions. Dr. James D. Bruce, vice president, in charge of university relations, University of Michigan, is vice chairman of the committee on arrangements, and has in charge the preparation of an all-day program to be conducted at the University of Michigan on Wednesday, March 4. Dr. Walter B. Cannon, Professor of Physiology at Harvard University Medical School, will deliver the annual Convocation Oration on "The Role of Emotion in Disease." Dr. Miller's presidential address will be on "The Changing Order in Medicine." About fifty eminent authorities will present papers at the general scientific sessions, while clinics and demonstrations will be conducted at the Harper, Receiving, Ford, Grace, Herman Kiefer and Children's Hospitals, of Detroit.



# STATE DEPARTMENT OF HEALTH

*Nathaniel L. Loomis*

## Scarlet Fever Morbidity and Mortality in Iowa

CARL F. JORDAN, M.D., Epidemiologist

During 1935, cases of scarlet fever reported to the State Department of Health totaled 3,771. This is the largest number since 1929, when reported cases were 4,315. Recorded deaths from scarlet fever for the first eleven months of 1935 total 59, more fatalities for the same period than have occurred since 1930. Of ten deaths due to this cause during November, 1935, four were in preschool children and eight in children under fourteen years of age. Among factors mentioned as leading to fatal outcome in this group of November deaths are: severe adenitis with cardiac weakness, acute myocarditis, endocarditis, bronchopneumonia (two) and toxemia.

The number of reported cases in December, 1935 (694) and in January, 1936 (817) was more than double the expected number. Past experience, based on communicable disease reports for the period 1924-1934, indicates that the prevalence of scarlet fever will continue at about the same level in February as in January, reaching the high point during the month of March.

### *Convalescent Scarlet Fever Serum in Prophylaxis and Therapy*

The value of convalescent scarlet fever serum in the prevention of scarlet fever and its complications is brought out in numerous articles in medical literature. In the January (1935) number of the JOURNAL, page 52, reference was made to two articles printed in recent numbers of the *Journal of the American Medical Association*.<sup>1 and 2</sup> The first of these articles deals with convalescent scarlet fever serum; its prophylactic and therapeutic value; a review of 2,875 cases. The second article discusses the pooled convalescent scarlet fever serum treatment of diverse streptococcic infections. Most of the results reported in these articles were made possible by a liberal supply of pooled convalescent scarlet fever serum processed at the Samuel Deutsch Serum Center in Chicago and distributed to private physicians and contagious disease hospitals in the Chicago area.

### 1. Human Convalescent Serum in Prophylaxis.

The first of the above articles<sup>1</sup> states that "convalescent scarlet fever serum has been employed for many years in the protection of individuals exposed to scarlet fever. Its efficiency has been uniformly favorable." Summary is made of the work of Degkwitz in the passive immunization of scarlet fever contacts and reported in 1922; of similar work carried out by Meader and reported in 1930, by the Dicks in 1924 and by Gordon on a group of student nurses in 1934. The usual procedure in prophylaxis is to administer ten cubic centimeters to children under ten years of age, and twenty cubic centimeters to older persons. The accompanying bar diagram (Fig. 1) is

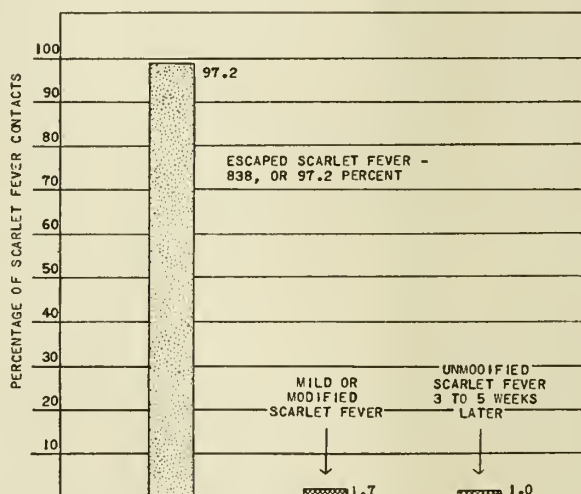


Fig. 1.

Bar diagram showing effect of convalescent scarlet fever serum in 862 contacts in homes with scarlet fever.

based on Table 1 in the previously mentioned article. It will be noted that in a group of 862 home contacts giving no history of having had scarlet fever, 838, or 97.2 per cent, escaped an attack of this disease through the prophylactic use of convalescent scarlet fever serum. The authors stress the fact that the duration of passive immunity is

only "ten to fourteen days" and that further prophylactic treatment is indicated in case of prolonged exposure. "Since there is no sensitization produced by human serum, repeated inoculations may be given without fear of serious reactions or development of unpleasant consequences."

## 2. Human Convalescent Serum in Therapy.

"The consensus in the literature is that the pooled convalescent scarlet fever serum has a beneficial influence on the early toxemia, angina, temperature and rash of scarlet fever, although different views are held as to the degree of such beneficial action."<sup>1</sup> Reference is made to the work of Gordon, Bernbaum and Sheffield; of Toomey, Birkhaug, Bode, Bahov, Prinzing and others. Prinzing's article published in German in 1918, compares the incidence of complications in 257 untreated scarlet fever cases and in 97 patients treated with convalescent serum. The bar diagram (Fig. 2), based on Table 2 in the article by

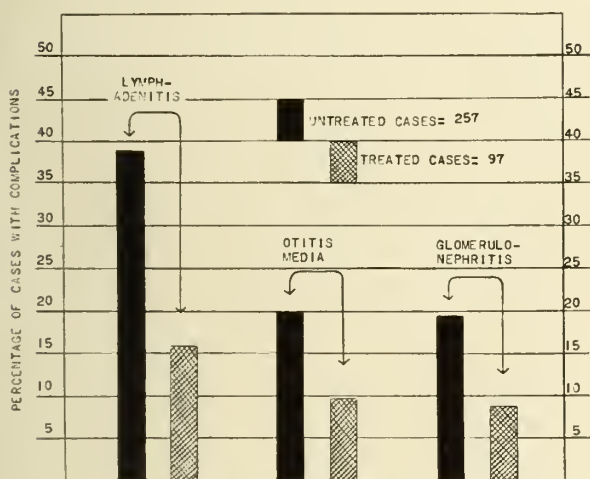


Fig. 2.

Bar diagram to show percentage of complications in 257 untreated cases and 97 cases of scarlet fever treated with convalescent serum.

Hoyne, et al,<sup>1</sup> illustrates the favorable results attending serotherapy, as reported by Prinzing eighteen years ago. The main portion of the article by Hoyne, Levinson and Thalhimer deals with the experiences of these authors and data gathered by them in recent years. They report favorable results attending the use of convalescent scarlet fever serum in lowering the incidence of complications in a group of 947 hospital patients with severe or critical illness, and of 983 home patients with mild, moderately severe or severe illness. Figure 3, based on Table 5 in the same article,<sup>1</sup> is a bar diagram showing the percentage of complications in 6,282 untreated scarlet fever patients and in 446 hospital patients "critically ill but free from complications at the time of serum administration."

The amount of convalescent scarlet fever serum used in therapy usually ranges from 40 to 80 cubic centimeters depending upon the age of the patient and the severity of the disease. The most favor-

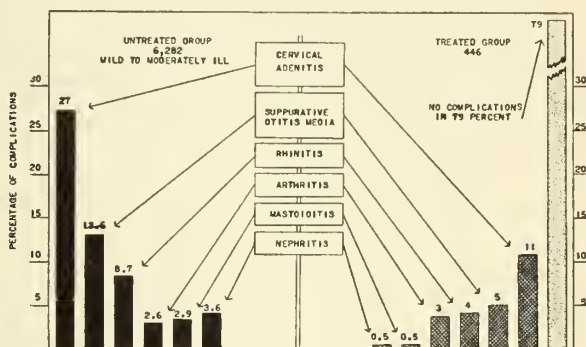


Fig. 3.

Diagram showing percentage of complications from scarlet fever in 6,282 untreated hospital patients and in 446 patients treated with convalescent scarlet fever serum.

able results in "reducing the incidence of complications as well as lowering the mortality rate" may be expected when the serum is administered in the first three days of illness.

Many readers of the JOURNAL will want to give further study to the articles to which reference has been made.

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## CONVALESCENT SERUM AVAILABLE

As announced in the January (1936) number of the JOURNAL, page 49, the State Department of Health has available for distribution to attending physicians and hospitals, a limited amount of pooled convalescent scarlet fever serum for use in therapy or prophylaxis of scarlet fever and related streptococcal infections.

The department has cooperated in this work with the Samuel Deutsch Serum Center of Chicago. Sidney O. Levinson, M.D., Medical Director of the Chicago Serum Center, made a second trip to Iowa in January of this year. On January 16, a group of scarlet fever convalescents contributed blood at the County Hospital in Boone. Necessary preliminary arrangements were carried out by William Woodburn, M.D., city health officer, with the aid of attending physicians of Boone and the school nurse. This work was done at the City Hall in Des Moines on January 17, under the supervision of H. E. Ransom, M.D., City Health Commissioner. Thirty-five persons from Boone, Des Moines, Norwalk and Perry volunteered for

(Continued on page 119)



# The JOURNAL of the Iowa State Medical Society

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**THE RURAL PHYSICIAN**

Time was when a small town or country practice was considered a requisite and frequently the stepping-stone toward specialization or an urban practice. Times and customs change, and it would appear that this custom is disappearing in these modern times. A general agent for a large insurance company commenting upon his ever-increasing problem of obtaining properly qualified examiners in rural territories, made the following statement:

"More and more it seems almost impossible to locate doctors within the age limit (sixty-five years) in some of these rural communities. Young doctors do not seem to be heading for the small towns as they did some years back, and the proposition of rural examinations is going to be an extremely difficult one to meet as this condition progresses.

"Frankly, it looks to me like there are some outstanding opportunities for young men in some of the smaller towns, but they all seem to have the idea they want to get in the city and be specialists. As you and I both perhaps are aware, a big percentage of the folks who set up in a city to practice are destined never to be particularly outstanding in their field, and who could achieve a comfortable standing and income in some of the smaller communities. I have been told that there are literally thousands of doctors in the Chicago area that are not self-sustaining on the basis of their practice. The American Medical Journal can do a great service to the country at large by carrying a series of editorials and articles on the opportunities to the medical profession in small towns, and then in the future we may not have so much difficulty in finding proper examiners in the smaller communities."

Is this protest by a general agent for an insurance company based upon fact, or is it a protest

against the rules of his company? If his observations are correct and unbiased, it would appear that some steps should be taken to correct the situation and provide the small town and rural communities with adequate medical service. Long recognized is the principle that adequate medical care can be rendered only through an adequate supply of properly trained physicians, and that these physicians must be adequately distributed in relation to medical needs.

In the last comprehensive survey, it was determined that in the United States there was approximately one physician for every 780 persons in the general population. This means that there is a greater number of physicians per capita in this country than is found in most European countries, including France, Germany and the British Isles. Inasmuch as morbidity and mortality records of this country are quite comparable to those in Europe, it would seem that an adequate or even an excess number of physicians is now practicing in this country. In justice to this comparison, however, one must consider the area and topography of the country served, since long distances or difficulty in transportation definitely limit the territory serviced by a physician. Even with due allowance for these factors, it still appears that the total number of physicians (156,440) is entirely adequate for the needs of the American people. Perhaps, however, the distribution of these physicians in regard to urban and rural communities demands further analysis.

A study, made among recent graduates from medical schools, and reported in 1932, indicates that slightly more than 50 per cent of recent graduates locate in communities of over 100,000 population, although these communities represent only about 30 per cent of the total population. Unfortunately for this discussion, the statistics obtained were not presented in sufficient detail to permit a determination of the conditions existing in the strictly rural sections or small communities. An independent study made in 1928 predicted a dearth of physicians in these less populous areas, and indicated that about 60 per cent of the communities without the service of any physician were within fifteen miles of a physician and received their medical services from this source. This report suggests that offsetting the dearth of physicians in the smaller towns, are to be considered those advances in transportation and communication so largely developed in this mechanical age. The telephone, good roads and the automobile have diminished distances and permit a wider service area for the practicing physician. It should further be recognized that while many rural communities formerly attracted physicians, these same communities now fail to attract because of their

proximity to urban centers, whose hospitals and outstanding specialists divert practice from the local physician.

From the standpoint of service, particularly where personal vigor and strength is required, the age of the practicing physician is significant. Most insurance companies automatically retire their medical examiners from active service when they reach sixty or sixty-five years of age. It would seem, therefore, worthwhile to study current medical practice in terms of age of the physician in the several localities. Since 1890, when the percentage of physicians over forty-five years of age was estimated at 42.2 per cent the age incidence has crept upward until in 1925 it was estimated that 61.4 per cent physicians were over forty-five years of age. In still another study more recently made, it was estimated that 59 per cent of all physicians were over forty-five years of age, and that, of this number, 18.6 per cent were over sixty-five years of age. While these figures appear significant, it is unfortunate for this discussion that we are not able to carry this comparison farther and determine the percentage of physicians over and under these respective ages in urban practice, and again in rural practice. We believe, however, from our personal observation, that the percentage of men over forty-five years of age, and again over sixty-five, would be greater in the small community than that quoted above, which is an average among all physicians investigated.

It would seem from this brief study that the layman whose comments were quoted early in this article possesses a very intelligent insight into the problem, and we feel that his suggestion of activity through the central medical organization and active discussion of these problems through medical journals, may constitute a very sane approach to the solution of this problem.

#### STATE MEDICINE

To the student of medical economics, it seems apparent that a future plan of medical practice may require certain changes and modifications of our present practice to fit changes already becoming effected in other professions. The form which may be taken by this newer practice of medicine has not been determined. In fact, it would appear that neither the physician nor the public which he serves, has as yet decided on the form of practice which would be most advantageous and acceptable to each. The voluminous and widely-heralded report of The Committee on the Costs of Medical Care brought the problem acutely to general attention. It was not surprising, then, that medical and non-medical debates, alike, should center about this subject.

Particularly noteworthy because of the number of persons concerned, is the debate which is now being conducted in universities, colleges, and high schools on the subject, "Resolved: That the several states should enact legislation providing for a system of complete medical service available to all citizens at public expense." This subject was chosen by the Committee on Inter-state Cooperation of the National Universities Extension Association, and this body has announced that the debate of the some one hundred thousand students participating should reach the attention of several million laymen.

There is scarcely a society—county, state or national—which has not manifested conspicuous interest in this problem of medical economics and entertained constructive analyses of the many factors involved through essays and debates of their own members and distinguished guests. During the past months, two significant publications have come to our attention. The one<sup>1</sup> entitled, "Complete Handbook on State Medicine," has been published by the Debaters Information Bureau for use both by physicians and laymen. It covers in study outline those fundamental considerations which require thorough understanding and analysis before intelligent debate is permissible. In subsequent sections, major arguments in affirmation of the thesis are advanced and later a complete review of factors negating the thesis. The form of this handbook provides the lay debater condensed briefs and is more suitable to his needs than that of the average medical essayist.

The second publication<sup>2</sup> is a Handbook of the Minnesota State Medical Association, dealing with the same resolutions but presenting the factual evidence and reasoning largely from the physician's point of view. More than twenty-five outstanding physicians are quoted—each, because of his eminence in the profession, an authority whose opinion must be respected and valued. Of particular interest to the medical essayist is the section devoted to "Summary of a Doctor's Viewpoint." Because of the signal interest shown in group practice, particularly in the mid-west, an article written by Dr. Richard E. Scammon, former dean of Medical Sciences of the University of Minnesota and of the University of Chicago, will be of particular interest.

Since it is obviously the duty of the medical profession to be informed on these timely topics, we feel that knowledge concerning these valuable publications will be gratefully received.

#### REFERENCES

1. Complete Handbook on State Medicine, Debaters Information Bureau, 45 A Free Street, Portland, Maine, Publisher. Price \$2.50; additional copies, seventy-five cents.
2. Handbook, Minnesota State Medical Association. Copies of this pamphlet may be secured from the central executive offices in Des Moines.



## Recent Advances in Tuberculosis

LEE FORREST HILL, M.D., Des Moines

Outstanding among the changing conceptions in the last decade of the way in which tuberculosis affects the human being, has been the gradually acquired but now generally accepted idea that two remarkably dissimilar, but closely related forms of the disease occur in man. First infection or primary tuberculosis results from the successful implantation of virulent tubercle bacilli upon tissues before they are sensitive to tuberculo-protein. Reinfection or superinfection type of tuberculosis results from the successful implantation of virulent tubercle bacilli upon tissues which are sensitive to tuberculo-protein. The striking differences between these two types of tuberculosis are clearly shown in the following comparison prepared by Stewart:

### First Infection Type

1. A benign rarely fatal condition produced by a first infection deposited in tissue with normal immunologic properties.
2. Lesions usually resolve to leave trivial fibrosed or calcified scars.
3. Tendency of lesions to cause tissue necrosis is very limited as well as non-progressive.
4. Lymph nodes are grossly involved as a rule.
5. Symptoms usually are absent, trivial or overlooked. If present, they usually are transitory.
6. Therapy is seldom required.
7. Therapy does not modify the course of primary tuberculosis to an appreciable degree.
8. Illness, disability, and death rates are relatively low.
9. Primary tuberculosis is a relatively unimportant public health problem.
10. Institutions are of very limited value in the treatment of primary tuberculosis.
11. The clinical subvarieties recognized are: primary intrathoracic, primary intra-abdominal, primary cervical; and primary tuberculosis of other regions of the body.

### Reinfection Type

1. A serious and often fatal condition produced by a reinfection deposited in tissues with abnormal immunologic properties induced by an antecedent infection.
2. Lesions resolve less consistently. May become fibrotic but usually do not calcify.
3. Tendency of lesions to cause progressive tissue necrosis is marked.
4. Lymph nodes are not grossly involved as a rule.
5. Symptoms are often conspicuous and tend frequently to increase in severity.
6. Therapy is often required.
7. Therapy often does modify the course of reinfection tuberculosis to a very appreciable degree.
8. Illness, disability and death rates are relatively high.
9. Reinfection tuberculosis (especially of the lungs) is a relatively important health problem.
10. Institutions are of great value in the treatment of secondary tuberculosis.
11. The clinical subvarieties recognized are: reinfection tuberculosis of the lungs; of various other viscera; of serous membranes; of bones and joints, et cetera.

Attention of clinicians should be drawn to the fact that primary pulmonary tuberculosis is a definite clinical entity capable of diagnosis, providing one has its essential features in mind. An incubation period of two to three weeks follows the tuberculous infection, during which time diagnosis is impossible except by recovery of tubercle bacilli from the gastric contents. The development of allergy or sensitivity of tissues to tuberculo-protein marks the end of the incubation period and the presence of the disease may now be ascertained by applying the tuberculin test. Accompanying the development of allergy there may be a marked collateral inflammatory reaction about the primary focus in the lung, which varies in extent but sometimes occupies a whole lobe. The x-ray readily localizes the site of the lesion. Hyperemia and swelling also occur in the associated infected lymph nodes.

The most important symptom occurring in primary pulmonary tuberculosis is fever. The fever is of the type seen in ordinary respiratory tract infections of children, and lasts from a week to three or four weeks. It is usually erroneously attributed to an attack of influenza or some similar

affliction. Another symptom sometimes manifested is cough, which is of a peculiar bitonal quality, and is due to the swollen tracheobronchial glands. If pressure from these swollen glands becomes great enough to compress the trachea or bronchi, stridor may be present. It is at this time also that erythema nodosum occurs. Wallgren says he has seldom seen it at any other time than at this period immediately following the development of allergy.

Physical findings are strikingly meager or absent altogether even in those cases in which the x-ray demonstrates a rather extensive pulmonary shadow. The degree of toxemia in the acute phase of primary pulmonary tuberculosis is, as a rule, rather mild, so that the infected individual does not have the appearance of being very ill. It is apparent therefore that patients with this form of tuberculosis present very little clinical evidence which might lead one to suspect the presence of such an infection. If tuberculin is used routinely as part of a general physical examination one may occasionally uncover the condition. Most of the cases, however, will be found where there is a history of known exposure to an open case of

tuberculosis, and such a history should always call for the application of the diagnostic tuberculin test to the exposed individual. Not long ago the author had occasion to examine five children in a family where the mother had died a year previously from tuberculosis. All five of the children reacted strongly to tuberculin. There was no clinical evidence of tuberculosis in any of them, and yet the x-ray revealed a pulmonary lesion in the inflammatory stage in the two youngest, three and four years of age, and calcified lesions in the three oldest, six, seven, and nine years of age.

While primary pulmonary tuberculosis in the acute stage may occur at any age, it is most frequently encountered in young children between the ages of one and four or five years. It must be differentiated from other pulmonary conditions, notably the acute pneumonias, atelectasis, and foreign bodies. A period of observation on the course of the process may be necessary before a definite conclusion can be reached.

Following the subsidence of the febrile stage is a period of slow resolution of the collateral inflammation about the primary focus in the lung and in the regional lymph nodes, and the gradual deposit of calcium in the central foci in both of these areas. The time required for the completion of this process varies from one to three years. In the past these calcified foci have been regarded as evidence of a healed tuberculous lesion, but the present belief is that healing seldom if ever occurs in the lifetime of the individual. Complete healing would imply that the tubercle bacilli had been killed, in which case the tuberculin reaction should become negative. That this is not the true situation has been demonstrated by Robertson of the Mayo Clinic, who has found living tubercle bacilli in the centers of these calcifications at different age periods throughout life, and also it is a well known fact that the tuberculo-protein sensitive individual seldom loses his ability to react to tuberculin. The live bacilli in the centers of the calcified foci maintain the allergic state of the tissues during the life of the individual. Myers believes this is a double liability, and refers to it as a bomb planted in the body which may go off at any time with disastrous consequences. It is a double liability because nature eventually attempts to absorb the calcium about the bacilli, thus permitting their escape to seed themselves this time upon allergic soil with the resultant risk of a progressive destructive form of reinfection tuberculosis.

In concluding this discussion of primary tuberculosis certain qualifying statements must be made to broaden one's conception of primary tuberculosis. Not always does the primary infection occur in the lung. It may occur in the cervical region,

in the abdomen or elsewhere. In fact, Stewart feels that tubercle bacilli, from wherever they are first seeded, enter the blood stream and are distributed like particulate matter to set up numerous foci in the various organs of the body, and that these foci may serve as sources for later endogenous reinfections. Not always does a primary pulmonary infection give rise to fever and to demonstrable collateral inflammation in the x-ray plate. It is probable that the majority of such infections occur silently, without clinical or x-ray evidence, but are revealed unmistakably by a positive tuberculin test. Finally it must be pointed out that not all manifest primary pulmonary lesions resolve to calcified foci. Many disappear altogether, while others leave only fibrous strands. Not infrequently calcium may be demonstrable in the lymph nodes but not in the lung.

An important question which is receiving much attention in the literature, is the relation of primary infections to secondary reinfection forms of tuberculosis. Does a primary infection protect the individual against the danger of developing secondary tuberculous disease, or is it an essential antecedent to the appearance in the human body of such serious forms of tuberculosis as meningitis, miliary tuberculosis, bone and joint tuberculosis, and phthisis? At present opinion is divided. Many hold the viewpoint that a successfully withstood primary infection imparts an immunity which enables the individual's tissues to cope with mild or moderate exposures, but which fails when the exposure is too heavy or too frequently repeated.

The Lymanhurst physicians on the contrary, from their experiences in examination for tuberculosis of some 12,000 children in the last fourteen years, feel that primary infections are a distinct liability; that no form of tuberculosis to which man is susceptible is prevented by a first infection; and that the primary infection is the first step along the path which leads not infrequently to the development of serious reinfection varieties of tuberculosis. They point out that miliary tuberculosis and tuberculous meningitis develop frequently as complications of a freshly acquired primary tuberculosis. They further show that over 70 per cent of the 115 cases of phthisis which have been observed at Lymanhurst between January, 1922, and July, 1934, have occurred in children in whom there was a known pre-existing primary tuberculosis. Of the children who entered Lymanhurst with negative tuberculin tests 930 were traced to see what form of tuberculosis they might subsequently have developed; 82 had primary tuberculosis, whereas only seven had phthisis.

(Continued on page 119)



### NORTHWEST MEDICAL CONFERENCE

The 1936 annual meeting of the Northwest Medical Conference will be held at the Palmer House in Chicago on Sunday, February 16. This is the first time that this meeting has been held outside of Minneapolis and St. Paul since its conception.

Several years ago, following the regular annual conference of the county society officers of the Minnesota State Medical Society, Dr. E. A. Meyerding, secretary, arranged a meeting for the officers and representative members of the medical associations of neighboring states. The purpose of the meeting was to provide an opportunity for these physicians to meet and discuss problems of mutual interest to the profession and the medical associations in this northwest region, particularly those dealing with medical economics. The conference was called the Northwest Regional Conference and those attending were so enthusiastic about the possibilities of this type of meeting that they unanimously approved the idea of making it an annual conference. The Northwest Regional Conference grew in attendance and popularity from year to year, gradually covering more and more of the northwest. In 1934 thirteen states were represented, and the title was changed to the Northwest Medical Conference. In 1935 the physicians of the sixteen states voted to hold the 1936 session in Chicago in order to provide a more central meeting place for the territory which the conference now represents.

Dr. E. S. Hamilton of Kankakee, Illinois, secretary of the conference for 1936, and the other officers have arranged a most interesting and pertinent program as follows:

Red Lacquer Room, Palmer House  
Chicago

Sunday, February 16, 1936

8:30 a.m.—Breakfast.

10:00 a.m.—Morning Session.

1. "The Social Security Act and its Relation to the Medical Profession." T. V. McDavitt, American Medical Association, Chicago.

Discussion opened by A. D. McCannel, M.D., Minot, North Dakota, and Chas. B. Reed, M.D., Chicago.

2. "Reciprocal Relations Between State Medical Societies." Harold M. Camp, M.D., Monmouth, Illinois.

Discussion opened by A. S. Rider, M.D.,

Flandreau, South Dakota and F. S. Crockett, M.D., La Fayette, Indiana.

12:30 p.m.—Luncheon (with the compliments of the Illinois State Medical Society.)

PRESIDENT'S ADDRESS. OLIVER J. FAY, M.D.,  
Des Moines, Iowa.

### BUSINESS SESSION

2:00 p.m.—Afternoon Session.

1. "Standardization of the Activities of the Committees on Medical Economics of the Midwest and North-West." F. L. Loveland, M.D., Topeka, Kansas.

Discussion opened by E. A. Meyerding, M.D., St. Paul, Minnesota, and W. H. Marshall, M.D., Flint, Michigan.

2. "Interprofessional Relations in the County," Fred Moore, M.D., Des Moines, Iowa.

Discussion opened by L. W. Larson, M.D., Bismarck, North Dakota, and J. M. Hayes, M.D., Minneapolis, Minnesota.

A cordial invitation is extended to all members of the Iowa State Medical Society. All who can arrange to attend are urged to do so. The discussion of these vital subjects will make the trip worthwhile.

### NEW SERIES OF MEDICAL BROADCASTS

A new and active committee of the Des Moines Academy of Medicine and Polk County Medical Society is the educational committee, whose chief function since November 6 has been the sponsoring of weekly radio programs designed to bring the subject of health before the public in an interesting and instructive fashion.

Inasmuch as the dramatized type of program has become increasingly popular, the committee decided to employ this means of presenting important health facts to the radio audience. With the very efficient assistance of Mr. Edwin Barrett of the Drake School of Radio and his students, a series of programs was delivered over station KSO at 2:15, each Wednesday afternoon during November, December and January. The series opened with a program on the immunization of diphtheria in conjunction with the medical society's attempt to immunize children of preschool age. Various topics were used during this series, and we have been told that the programs have been very well received by the listening public; so well in fact that the medical society was asked to continue the programs at the close of the first series.

Because of the popularity of the "Drama of Health" programs, a more favorable time was obtained, and the new series of programs will be heard each Wednesday afternoon at 5:00 o'clock during the months of February, March and April. Topics are as follows: February 5, "Preventive Medicine"; February 12, "Mental Hygiene"; February 19, "Posture"; and February 26, "Dental Hygiene."

Much credit is due the members of the Des Moines Academy of Medicine and Polk County Medical Society, who through their education committee, have assisted in writing these "Dramas of Health," and also to Mr. Barrett for the efficient and professional manner in which the programs have been presented. No local doctor's name is mentioned in any of these broadcasts, and in fact, only occasionally has any doctor participated in the actual presentation of the program. This manner of dispensing health information is unique, but the educational committee believes the experiment has proved worthwhile, and that this method has created more interest among the listening public than was possible by lectures or talks given by individual physicians.

L. K. Meredith, M.D., Chairman.

#### MEMBERSHIP FOR 1936

If the rate at which dues are being sent in to the State Society office is any prophesy of events for the year, 1936 should be a record one in the Society's history. As our membership goes, so goes the Society. A large membership indicates an interested one; activities are extensive, and good results are accomplished, both for the profession and for the general public. At the time of going to press, there are 1352 members in good standing for 1936, an unusually good record for this early in the year, nearly 600 more than for the same date in 1935. Several counties—Cerro Gordo, Chickasaw, Clay, Decatur, Franklin, Hardin, Madison, Marshall, Palo Alto and Shelby—have sent in dues for every physician who was a member in 1935. Many more counties are prevented from having this record by only one or two delinquent members. There are twelve one hundred per cent counties, i. e., in which all eligible physicians are members in good standing: Adair, Adams, Audubon, Emmet, Floyd, Howard, Poweshiek, Ringgold, Tama, Van Buren, Washington and Wright. The county society secretaries and the members in general are most highly commended for this splendid example of cooperation, harmony and interest in their professional organization.

## Radio Schedules

### IOWA STATE MEDICAL SOCIETY

WOI Wednesdays at 4:30 p. m.

WSUI Mondays at 8:00 p. m.

(No broadcast over WSUI February 3, 10, and 17 because of basket ball games)

- Feb. 5 Cancer Control—  
Joseph B. Priestley, M.D.
- Feb. 12 Pneumonia—  
S. W. Barnett, M.D.
- Feb. 19 Backache and Sciatica—  
Karl R. Werndorff, M.D.
- Feb. 26 The Invisible Handicap—  
Harry H. Lamb, M.D.
- Mar. 4 What's Behind a Prescription—  
J. Earle Galloway, Ph.C.

### AMERICAN MEDICAL ASSOCIATION

Broadcast over Red Network each Tuesday at 3:00 p. m., through stations WEAf, WEEI, WTIC, WJAR, WTAG, WCSH, KYW, WFBR, WRC, WGY, WBEN, WCAE, WTAM, WWJ, WMAQ, KSD, WHO, WOW, WDAF.

- Feb. 4 Pneumonia—  
W. W. Bauer, M.D.
- Feb. 11 Little Tips on Home Hygiene—  
W. W. Bauer, M.D.
- Feb. 18 Heart Disease—  
Morris Fishbein, M.D.

### DES MOINES ACADEMY OF MEDICINE AND POLK COUNTY MEDICAL SOCIETY

KSO Wednesdays at 5:00 p. m.

- Feb. 5 Preventive Medicine.
- Feb. 12 Mental Hygiene.
- Feb. 19 Posture.
- Feb. 26 Dental Hygiene.

The Speakers Bureau Committee will be glad to publish the radio schedule of any county medical society in Iowa if the program for the coming month is mailed to this office before the first of the month.



# SPEAKERS BUREAU ACTIVITIES

## SPRING POSTGRADUATE COURSES

The Speakers Bureau Committee will present postgraduate courses at Boone, Sheldon, Creston and Fairfield. The program and dates for the courses at Boone and Sheldon are given below. The fee for both of these is \$10.00, and enrollment may be made with Dr. B. T. Whitaker at Boone, and Dr. W. R. Brock at Sheldon. The speakers have been chosen for their knowledge of the subject and their ability to transmit that knowledge.

The laboratory course which was given at Independence, Hampton, and Emmetsburg last year will be presented at Creston, starting February 19. Dr. John C. Parsons is in charge of the course, and anyone interested in the course may enroll with him. The fee will be \$7.50.

A course in medicine and surgery will be conducted at Fairfield, starting about the first of March. Information concerning it will be mailed to all physicians in the adjoining counties. Dr. Ludwig Gittler is in charge of local arrangements.

It is the hope of the committee that every physician within driving distance of these centers will avail himself of the opportunity of attending the courses. They provide an easy and inexpensive method of learning the new developments in medical science, and should be valuable.

### DIAGNOSIS AND THERAPEUTICS

Hotel Holst

Boone, Iowa

- Feb. 13 Recent Advances in Therapeutics—O. H. Plant, M.D., Professor of Pharmacology, University of Iowa.
- Feb. 20 Treatment of Infections of the Genito-urinary Tract—C. D. Creevy, M.D., Assistant Professor of Surgery and Assistant Director of Urology, University of Minnesota.
- Feb. 27 Irradiation Therapy—A. W. Erskine, M.D., Cedar Rapids.
- Mar. 5 Modern Treatment of Anemia\*—C. J. Watson, M.D., Assistant Professor of Clinical Medicine, University of Minnesota.
- Mar. 12 Therapeutics in Neurology — Percival Bailey, M.D., Professor of Surgery and Neurology, University of Chicago.
- Mar. 19 Diagnosis and Treatment of Common Skin Disorders—P. A. O'Leary, M.D., Professor of Dermatology and Syphilology, University of Minnesota, Graduate School of Medicine.
- Mar. 26 Treatment of Gastro-intestinal Disorders—Walter L. Palmer, M.D., Associate Professor of Medicine, University of Chicago.
- April 2 Treatment of Diseases of the Gallbladder—Erwin R. Schmidt, M.D., Professor of Surgery, University of Wisconsin.

\* Has not definitely accepted this date.

Hours: 6:00-7:00 Lecture  
7:00-8:00 Dinner  
8:00-9:00 Lecture

### DIAGNOSIS AND THERAPEUTICS

Arlington Hotel

Sheldon, Iowa

- Feb. 14 Recent Advances in Therapeutics—O. H. Plant, M.D., Professor of Pharmacology, State University of Iowa.
- Feb. 21 Treatment of Infections of the Genito-urinary Tract—C. D. Creevy, M.D., Assistant Professor of Surgery and Assistant Director of Urology, University of Minnesota.
- Feb. 28 Irradiation Therapy—K. W. Stenstrom, M.D., Professor of Biophysics, University of Minnesota.
- Mar. 6 Modern Treatment of Anemia\*—C. J. Watson, M.D., Assistant Professor of Clinical Medicine, University of Minnesota.
- Mar. 13 Therapeutics in Neurology — Percival Bailey, M.D., Professor of Surgery and Neurology, University of Chicago.
- Mar. 20 Diagnosis and Treatment of Common Skin Disorders—Paul A. O'Leary, M.D., Professor of Dermatology and Syphilology, University of Minnesota, Graduate School of Medicine.
- Mar. 27 Treatment of Gastro-intestinal Disorders—Walter L. Palmer, M.D., Associate Professor of Medicine, University of Chicago.
- April 3 Treatment of Diseases of the Gallbladder—Erwin R. Schmidt, M.D., Professor of Surgery, University of Wisconsin.

\* Has not definitely accepted this date.

Hours: 5:00-6:00 Lecture  
6:00-7:00 Dinner  
7:00-8:00 Lecture

# WOMAN'S AUXILIARY NEWS

*Edited by the Press and Publicity Committee*

MRS. DEAN W. HARMAN, *Chairman*, Glenwood, Iowa

## DALLAS-GUTHRIE MEETING

The Dallas-Guthrie Medical Auxiliary met January 16, 1936, at the Arlington Hotel in Adel, Iowa. Thirteen members and one guest were present. After a one o'clock luncheon, a business meeting was held, and the following officers were elected for the coming year: President, Mrs. E. T. Warren of Stuart; president-elect, Mrs. George McMahon of Wauke; first vice president, Mrs. H. F. Clark of Stuart; second vice president, Mrs. M. J. Donovan of Perry; secretary, Mrs. C. E. Mershon of Adel; and treasurer, Mrs. M. H. Brinker of Yale. At the close of the business session, Dr. John H. Peck of Des Moines gave a talk on the advisability of conducting tuberculin tests through the schools. For the purposes of becoming better acquainted this auxiliary has had several social gatherings at various places, and proposes to continue doing so each month.

## AN AUXILIARY MEMBER SHOULD KNOW THAT:

A medical auxiliary serves the medical profession, and through it, the public. Such service is satisfactory, because it is unselfish. An auxiliary is always organized with the permission of the medical society and should have an advisor or advisory committee to direct it. The auxiliary should make an annual report to its society and undertake no new project without its approval. The principal functions of an auxiliary are: health education, public relations, legislation (reserve force), philanthropy, and social contacts.

The laity requires education, but it should be given through the medical profession, so there may be rational control of what the public thinks and does in health activities. Most important objectives of an auxiliary are to direct public thinking and actions in channels the medical profession desires, and to extend authentic information on health. We support an organization only when we are members and understand the tasks and objectives and how to accomplish them. An auxiliary member, therefore, should attend as many meetings as possible, so that she may:

1. Understand the purposes and objectives of her auxiliary.
2. Receive the particular charge given by local, state, and national.
3. Receive instructions in how to fulfill that charge.
4. Become informed about:
  - a. Personal and community hygiene.
  - b. Administration of local, state, national health.
  - c. Medical and health laws, local, state, national.

- d. The health of her community.
- e. Communicable diseases; their prevention and control.
- f. Her health in relation to her community.
- g. General problems of health all should know.
- h. Approved educational material; where to obtain it.
- i. The development of the medical arts.
- j. Why the American Medical Association urges the promotion of Hygeia; how done.
- k. What legislation the medical society sponsors; why; how the auxiliary acts as a reserve force, what the individuals may do.
- l. Philanthropic work related to the medical profession; service by her auxiliary; what her auxiliary is doing; why.
- m. What lay organizations are doing in her community.

## WAYS IN WHICH A MEMBER CAN SUPPORT HER AUXILIARY

1. Pay dues.
2. Attend meetings.
3. Accept offices, chairmanships, in other organizations, especially those related to health, so that
  - a. Informed speakers may address them.
  - b. Approved material may be given.
  - c. Programs and projects are undertaken which are scientifically sound.
  - d. So she may keep informed about medical matters and activities in other organizations.
  - e. Report to her president and society, programs and projects which are unwise and unacceptable; report to be made through advisors.
4. Promote good fellowship by affability at meetings; attend entertainments and conventions; and assist as requested.
5. Fulfill the charges given through the advisors.

The busy wife is an asset to the auxiliary, if she is an *informed member*, because she has many opportunities to carry the aims and decisions of the medical profession and keep health leadership where it belongs—*with the profession*. As a member, she may speak with authority, and receive respect and attention that will be missing as an unattached doctor's wife. It is not necessary to partake of every phase of auxiliary work to be a good member. She should know when to keep quiet, when to report to advisors; when to answer and what to say.

If for no reason but to assemble regularly and study the history of the medical arts and the medical heroes, an auxiliary would be worthwhile, because it would give wives an understanding of the supreme unselfishness and the greatness of the profession.

The time has come when the Auxiliary has so proved its worth that the question is not, "Are you an auxiliary member?" but "Why are you not a member?"



## SOCIETY PROCEEDINGS

### Cass County Annual Meeting

Dr. Earl C. Montgomery of Atlantic was elected president of the Cass County Medical Society at the annual meeting of that organization held Friday, January 10, at the Hotel Whitney in Atlantic. Dr. Agnes V. Wilder of Atlantic was named vice president, and Dr. R. L. Barnett, also of Atlantic, secretary and treasurer. Dr. Montgomery was also selected as the delegate. The scientific program consisted of The Present Day Theory of the Conception Period, C. V. Edwards, M.D., of Council Bluffs; Obstetric Problems, R. A. Jacobsen, M.D., of Exira; and The Social Security Act as it Affects the Medical Profession, M. C. Hennessy, M.D., of Council Bluffs.

### Cerro Gordo County

John F. Noble, M.D., pathologist at the Ancker Hospital in St. Paul, was the speaker of the evening for the meeting of the Cerro Gordo County Medical Society held in Mason City, Tuesday, January 21. Dr. Noble spoke on Heterophile Antipneumococcus Serum Therapy in Lobar Pneumonia.

### Clayton County Annual Meeting

The Clayton County Medical Society held its annual meeting Tuesday, January 7, at the Bayless Hotel in Elkader, with the following results: Dr. E. G. Kettlekamp of Monona, president; Dr. T. W. Lichter of Edgewood, vice president; and Dr. J. W. Hudek of Garnavillo, secretary and treasurer. The following program was presented by three Dubuque physicians: Some Cardiac Problems, L. E. Cooley, M.D.; Burns, A. C. Pfohl, M.D.; and The Management of Sinusitis in Children, J. A. Thorson, M.D.

J. W. Hudek, M.D., Secretary.

### Crawford County Annual Meeting

Members of the Crawford County Medical Society held their first meeting of the year in Denison, Tuesday, January 14. After a six-thirty steak dinner, the election of officers for the ensuing year was held with the following results: Dr. H. W. Clasen of Denison, president; Dr. R. C. Scannell of Vail, vice president; Dr. J. James Duffy of Denison, secretary and treasurer; Dr. C. L. Sievers of Denison, delegate; and Dr. E. M. Mark of Manilla, alternate delegate. Anton L. Fink, M.D., of Carroll, presented an illustrated lecture on The Ambulatory Treatment of Diseases of the Rectum; and R. C. Scannell, M.D., spoke on Peptic Ulcer and Its Treatment.

### Dallas-Guthrie Society

The following program was presented before the Dallas-Guthrie Medical Society at its meeting held

in Adel, Thursday, January 16: The Economic Side of Medicine, P. W. Beckman, M.D., of Perry; The Use of the Oxygen Tent in Pneumonia (and demonstration), C. B. Luginbuhl, M.D., of Des Moines; The Ascheim-Zondek Test, J. W. McCann of Perry; and The County-Wide Tuberculosis Case-Finding Program, John H. Peck, M.D., of Des Moines.

### Dubuque County

The regular meeting of the Dubuque County Medical Society was held Tuesday, January 14, in the Indian Room of Diamond's Cafeteria in Dubuque. Dinner was served at six-thirty, after which the following interesting and instructive program was presented: Symposium on Arteriosclerosis and the Cardiovascular Renal Disease Problem—Classification, Etiology, and Pathology, F. P. McNamara, M.D.; The Effect on Special Eye Organs, H. G. Langworthy, M.D.; Symptoms and Diagnosis, L. E. Cooley, M.D.; and Treatment and Prognosis, Walter Cary, M.D. The general discussion was headed by H. A. Stribley, M.D., and H. M. Pahlas, M.D.

A. C. Pfohl, M.D., Secretary.

### Floyd County Annual Meeting

Recently elected officers for the Floyd County Medical Society include: Dr. C. W. McQuillen, president; Dr. J. B. Miner, Sr., vice president; and Dr. H. A. Tolliver, secretary and treasurer. All officers are of Charles City.

### Hardin County

The Hardin County Medical Society held its regular monthly meeting at the Winchester Hotel in Eldora, Tuesday, January 21. Following dinner at six-thirty, the society was addressed by L. R. Woodward, M.D., of Mason City, on The Anemias.

W. E. Marsh, M.D., Secretary.

### Harrison County Annual Meeting

Officers elected at the annual meeting of the Harrison County Medical Society held in Logan, Tuesday, January 14, are: Dr. H. W. Mathiasen of Persia, president; Dr. S. M. Clark of Woodbine, vice president; Dr. F. H. Hanson of Magnolia, secretary and treasurer; and Dr. C. S. Kennedy of Logan, delegate. David Williams, M.D., of Logan, read a paper on Anthrax, and C. S. Kennedy, M.D., also of Logan, spoke on Rocky Mountain Spotted Fever.

### Jasper County

Walter D. Abbott, M.D., of Des Moines, furnished the scientific program for the Jasper County Medical Society when that group met in Newton, Tuesday, January 7. Dr. Abbott spoke on Treatment of Head Injuries.

### Linn County Meetings

Thursday, January 9, the Linn County Medical Society entertained Albert M. Snell, M.D., of Rochester, as its guest speaker. Dr. Snell's address on The Differential Diagnosis of Conditions Associated with Jaundice, was discussed by H. M. Korn, M.D., of Iowa City; F. N. Cole, M.D., of Iowa Falls; and J. Stuart McQuiston of Cedar Rapids. Another feature of the scientific program was a paper on Syphilis, presented by Ernest G. Kieck, M.D., of Cedar Rapids.

Edward A. Schumann, M.D., professor of obstetrics, University of Pennsylvania, addressed the members of the society Thursday, February 6, on Leaves from the Notebook of an Obstetrician and Gynecologist.

The next meeting of the group will be held in Cedar Rapids, Thursday, March 12, with the following program presented by local physicians: The Physiology of the Uterus in Labor, W. E. Brown, M.D.; The Pathology of the Uterus in Labor, Charles S. Day, M.D.; Movement Disorders and Various Types of Gaits, J. Stuart McQuiston, M.D.; and The Practical Application of Electrocardiography, B. F. Wolverton, M.D.

T. F. Hersch, M.D., Secretary.

### Monona County Annual Meeting

Dr. Stanley N. Anderson of Onawa was elected president of the Monona County Medical Society, at the annual meeting held Tuesday, January 14. Dr. L. A. Gaukel of Onawa was re-elected secretary and treasurer.

### Osceola County Annual Meeting

Officers named at the annual election of the Osceola County Medical Society held Monday, January 6, at the court house in Sibley, are: Dr. Frank S. Hough of Sibley, president; Dr. L. H. Heetland of Sibley, vice president; Dr. F. P. Winkler of Sibley, secretary and treasurer; Dr. E. P. Farnum of Sibley, delegate; and Dr. Frank Reinsch of Ashton, alternate delegate.

### Polk County Annual Meeting

New officers for the Polk County Medical Society, elected Tuesday, January 28, include: Dr. Walter E. Baker, president-elect; and Dr. N. Boyd Anderson, secretary and treasurer. The following delegates were elected last year for two-year terms: Drs. Walter E. Baker, James A. Downing, Fred Moore, and William E. Sanders; alternates are Drs. Harry A. Collins, C. W. Losh, John Russell and John B. Synhorst. Dr. Clifford W. Losh was inducted as president of the organization to serve during 1936.

### Pottawattamie County

Members of the staff of the Jennie Edmundson Memorial Hospital presented the following program for the Pottawattamie County Medical Society at a meeting held in Council Bluffs, Monday, January 27: Bilateral Empyema in a Child, Arnold L. Jen-

sen, M.D.; Chronic Labyrinthitis, Jack V. Treynor, M.D.; and Diverticulitis, A. A. Johnson, M.D. Guest speaker for the occasion was Howard L. Beye, M.D., of Iowa City, who addressed the group on Some Conditions Requiring Surgery Following Cholecystectomy.

Fred H. Beaumont, M.D., Secretary.

### Sac County Annual Meeting

The Sac County Medical Society met at Sac City, Monday, January 6, and named the following officers to serve during 1936: Dr. J. R. Dewey of Schaller, president; Dr. W. E. Hart of Odebolt, secretary and treasurer. In addition to the election, the business session was devoted to a discussion of fees for immunization work, both group and private, and a uniform price was adopted for this work. Some revision of the general fee bill was authorized.

W. E. Hart, M.D., Secretary.

### Scott County

Carlo S. Scuderi, M.D., associate professor of surgery, University of Illinois, was guest speaker for the Scott County Medical Society, at the regular meeting held in Davenport, Tuesday, January 7. Dr. Scuderi spoke on Injuries of the Vertebral Column.

### Van Buren County Annual Meeting

At the annual meeting of the Van Buren County Medical Society held in Keosauqua, Thursday, December 26, the following officers were elected for 1936: Dr. L. A. Coffin of Farmington, president; Dr. H. E. Woods of Birmingham, vice president; Dr. C. R. Russell of Keosauqua, secretary and treasurer; Dr. E. E. Sherman of Keosauqua, delegate; and Dr. Coffin, alternate delegate.

C. R. Russell, M.D., Secretary.

### Woodbury County Annual Meeting

Charles A. Elliott, M.D., professor of medicine, Northwestern University, Chicago, addressed the Woodbury County Medical Society at its annual meeting held in Sioux City, Wednesday, January 8. Dr. Elliott spoke on The Management of Hepatic Disease. The annual election resulted as follows: Dr. Charles T. Maxwell, president; Dr. A. H. Hendrickson, vice president; and Dr. R. N. Larimer, secretary and treasurer.

R. N. Larimer, M.D., Secretary.

### Sioux Valley Medical Association

The forty-first annual session of the Sioux Valley Medical Association was held at the Martin Hotel in Sioux City, January 21 and 22. Clinics in pediatrics, obstetrics, medicine, surgery, urology, and orthopedics were presented by prominent clinicians from many sections of the country. In addition to the clinics the following prepared addresses were presented by the guest speakers of the organization: Psychotherapy, William Malamud, M.D., of Iowa City; Childhood Tuberculosis, Lee Forrest Hill, M.D., of Des Moines; Some Observations on the Anemias of Pregnancy, E. D. Plass, M.D., of Iowa City; In-



ternal Derangement of the Joints, R. K. Ghormley, M.D., of Rochester; Surgery of the Colon, C. F. Dixon, M.D., of Rochester; and Ancient and Modern Considerations of the Problem of Urinary Calculus, Nels Ockerblad, M.D., of Lawrence, Kansas.

Officers elected at the annual business session include: Dr. F. P. Winkler of Sibley, president; Dr. I. L. Sogge of Windom, Minnesota, first vice president; Dr. W. F. Bushnell of Elk Point, South Dakota, second vice president; Dr. Howard I. Down of Sioux City, secretary; and Dr. W. R. Brock of Sheldon, treasurer.

#### Upper Des Moines Medical Society

The winter meeting of the Upper Des Moines Medical Society was held at the Gardston Hotel in Estherville, Thursday, January 16. The scientific program consisted of: Practical Aspects of Cystoscopic Examinations in Relation to the General Practitioner, Philip A. Scott, M.D., of Emmetsburg; A General Discussion of Scarlet Fever and Its Complications, M. T. Morton, M.D., of Estherville; Treatment of Arthritis, Thomas L. Ward, M.D., Arnold's Park; and Twilight Sleep, Dean H. King, M.D., of Spencer. Dr. George H. Keeney of Mallard was named president of the organization for 1936, and Dr. Don Rodawig of Spirit Lake was re-elected secretary and treasurer.

#### PERSONAL MENTION

Dr. George B. Crow of Burlington, was guest speaker for the Davenport Woman's Club, at a meeting held Monday, January 20. Dr. Crow's address was on "The Prolongation of Life."

Dr. D. C. Mathews of Vandalia, Missouri, formerly a physician at Cantril and Mt. Sterling, has located in Milton, where he will occupy the offices of the late Dr. C. N. Stephenson.

Dr. Calvin Bosch, who was graduated from the University of Iowa, College of Medicine in 1928, has located in Melvin for the practice of medicine. Dr. Bosch interned at the New York City Hospital, and has practiced in New Orange, New Jersey, and Mitchell, South Dakota.

Dr. Leo J. Homan, formerly of Yutan, Nebraska, has established his offices and residence in Marion, where he will continue his practice of medicine and surgery.

Dr. W. W. Bowen of Fort Dodge, spoke before the Sheldon Junior College, Wednesday, January 15. His talk was the first of a series of addresses on health and medicine sponsored by the Speakers Bureau. His subject was "The Magic in Medicine."

Dr. Seth G. Walton, a recent graduate of the University of Iowa, College of Medicine, has associated himself with Dr. J. S. Terrill at Bedford. Dr. Walton interned at the University of Iowa Hospitals, and at the Marine Hospital in Chicago.

Dr. H. F. Hartje, who has practiced at Adair for eleven years, has moved to Atlantic, where he will continue his practice of medicine.

Dr. D. J. Glomset of Des Moines, spoke before the Fairfield Rotary Club, Friday, January 17, on "Germes vs. Man."

Dr. H. C. Kluever has located in Fort Dodge, where he will specialize in the treatment of eye, ear, nose and throat diseases. Dr. Kluever was graduated in 1927 from Rush Medical College, Chicago, interned at the Charity Hospital in New Orleans, and practiced in Greenwood, Mississippi. For the past five years he has been taking postgraduate work with Dr. Lierle and Dr. O'Brien at the University of Iowa, College of Medicine.

#### MARRIAGES

The marriage of Miss Bernice Nelson, daughter of Mr. and Mrs. A. T. Nelson, of Wilton, and Dr. A. D. James of Des Moines, took place Sunday, January 12, at the home of the bride's parents. After a short wedding trip, Dr. and Mrs. James will be at home in Des Moines, where Dr. James has been engaged in the practice of medicine for the past several years.

Saturday, January 25, Miss Constance Lamar, daughter of Mrs. L. H. Lamar of Sioux City, and Dr. Carl V. Bisgard of Harlan, were married at the home of the bride's mother. Following a wedding trip through the southern states, the young couple will return to Harlan, where Dr. Bisgard has been practicing for the past few years.

#### DEATH NOTICES

Feeney, Francis Sylvester, of New Hampton, aged sixty, died January 18, as the result of heart failure. He was graduated in 1898 from the University of Illinois, College of Medicine, Chicago, and at the time of his death was a member of the Chickasaw County Medical Society.

Gorman, Thomas Conner, of Cedar Rapids, aged sixty-two, died suddenly January 24, as the result of cerebral hemorrhage. He was graduated in 1897 from Rush Medical College, Chicago, and at the time of his death was a member of the Linn County Medical Society.

Gratiot, Harvey Bradley, of Dubuque, aged sixty-two, died January 13, following a short illness of pneumonia. He was graduated in 1896 from Jefferson Medical College, Philadelphia, and at the time of his death was a member of the Dubuque County Medical Society.

Mills, Daniel Guy, of McCallsburg, aged seventy-five, died January 28. He was graduated in 1896 from the State University of Iowa, College of Medicine, and at the time of his death was a member of the Story County Medical Society.

# HISTORY OF MEDICINE IN IOWA

*Edited by the Historical Committee*

DR. FRANK M. FULLER, Keokuk

DR. TOM B. THROCKMORTON, Des Moines

DR. JOHN T. MCCLINTOCK, Iowa City

DR. WALTER L. BIERRING, Des Moines

DR. PAUL W. VAN METRE, Rockwell City

DR. WILLIAM JEPSON, Sioux City

## Milestones in Public Health

1880--1934

J. H. KINNAMAN, M.D.

Director Division Child Health and Health Education  
State Department of Health

The first meeting of the State Board of Health was held at the State House in Des Moines on May 5, 1880. Prior to 1889, that board acted solely in an advisory and regulatory capacity to state and local governmental units. From that year until 1915, whenever an epidemic of "catching" disease was reported to its secretary, a member of the board visited the community to investigate the cause of the outbreak and to cooperate with local boards of health in bringing the disease under control.

The State Board of Health Bacteriological Laboratory was established in 1904. An appropriation to be expended only for vital statistics was made by the Thirty-first General Assembly in 1906.

By 1912, the board and its secretary fully appreciated the need for an extension of executive functions. Dr. Sumner, who was then Secretary of the State Board of Health, said, "The legislature should make provisions for the employment of an epidemiologist so that epidemics may be prevented instead of being investigated after they are fully under headway and the people are beginning to die." In that same year mention is first made of disease carriers.

The make-up of the State Board of Health was changed in 1914 and the Secretary was made Executive Officer of the board. Prior to this time the members of the board were all physicians. Its membership under the new set-up comprised four physicians and one civil engineer.

In 1915, a division of epidemiology was created and consolidated with the laboratories for the State Board of Health. The services of a trained investigator of disease were thus made available to local boards of health provided such boards paid the travel expenses of that worker.

By 1916, the influence of the engineer's viewpoint is evidenced by repeated references to the necessity for sanitary inspections of school buildings and their environs. The Schick test, to determine susceptibility to diphtheria, is first mentioned in that same year.

Beginning in 1918, a federal grant permitted the laboratories to run Wassermann tests on blood specimens taken from individuals suspected of having syphilis. A year later, the Iowa legislature enacted a Venereal Disease Control Law and appropriated funds to establish a Bureau of Venereal Disease Control, so that work in that field initiated as a war-time measure by the federal government could be continued. A Housing Department was added to the board in 1919. In that same year, the merits of toxin-antitoxin, a diphtheria preventive agent, are cited.

The Model Registration Law for collecting and registering births and deaths became effective in 1921. A Bureau of Public Health Nursing, financed by funds from the Iowa Tuberculosis Association, was added to the organization of the board in that same year.

During 1923, Iowa was admitted to the Registration Area for deaths. One year later the state



became a part of the Registration Area for births. Federal aid for venereal disease control was discontinued in 1924. The need for the establishment and maintenance of local health supervision and service on a whole-time basis in districts and counties is first emphasized in the reports of that year. The Secretary Executive Officer of the State Board of Health recommended the addition of a Bureau of Tuberculosis Control and a Division of Sanitary Engineering in 1924. The board, by statute, was made responsible for the prevention of stream pollution in that year.

Title VII, chapter 105, Code of Iowa, 1924, provided for consolidation of the State Board of Health, State Hotel Inspector, Boards of Medical, Podiatry, Osteopathic, Chiropractic, Nurses, Dental and Optometry Examiners into one department to be known as the State Department of Health. Title VII, chapter 106, Code of Iowa, 1924, changed the make-up of the State Board of Health and provided for the appointment of a Commissioner of Public Health.

During the first year that the executive means was provided for the State Board of Health to carry out a public health program (1925) several activities were initiated which have been continued to date. They include: assisting with the organization and conduct of diphtheria preventive programs, releasing a weekly health message, cooperating with the Iowa Congress of Parents and Teachers in the Summer Round-Up project and supplying sterile ampules containing "drops" to physicians and hospitals for use in preventing blindness in the newborn. The rules and regulations of the State Board of Health were revised in that year. Financial aid was secured from the International Health Board of the Rockefeller Foundation to be expended in the interest of sanitary and health facilities for rural areas. The Commissioner, in his budget requests, asked for funds to enable the department to assist financially with the establishment and maintenance of whole-time county health units. He recommended the establishment of a Division of Public Health Education.

During the biennial period ending June 30, 1928, new divisions added to the organization of the department included nursing education, barbering and cosmetology. The Commissioner recommended the addition of three new divisions, namely, communicable disease, child hygiene and law enforcement. The legislature was urged to enact legislation permitting county boards of supervisors by resolution to adopt the whole-time county health unit plan. New public health problems comprised tularemia (rabbit disease), undulant or malta fever (Bang's disease in cattle),

epidermophytosis (athlete's foot) and Vincent's angina (trench mouth).

In 1929, the divisions of preventable diseases and of law enforcement began to function. The need for a public health laboratory, located at Des Moines as an integral part of the State Department of Health, was stressed. The public health aspects of milk control work were pointed out and attention was directed to the fact that such work was under the direction of the State Department of Agriculture.

On July 1, 1931, a Division of Maternity and Child Hygiene assumed responsibility for a state-wide program in the interest of the health of mothers and children.

During the biennial period ending June 30, 1934, amebic dysentery, Rocky Mountain spotted fever and mottled enamel defect of the teeth, attracted attention as public health problems. Marked reductions, amounting to 27.8 per cent, in the appropriation for the department became effective July 1, 1933. None of that loss in financial support for this essential function of state government has been regained.

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#### AN APPRECIATION\*

EDWARD STARR JUDD, M.D.,  
Master Surgeon

In the death of Dr. Edward Starr Judd on November 29 last, the medical world lost one of its shining lights and surgery one of its masters. The bare facts of his training and surgical career may be found in other notices of his death. To those of us whose good fortune it was to know him well, his passing has made keen the realization that in this man were combined far more of the qualities of greatness than one sees often in those who have attained success.

It was the writer's privilege to know Doctor Judd shortly after he had graduated in medicine and just as he was beginning his surgical career at the Mayo Clinic. At that time Doctor Judd was Dr. Charles Mayo's first assistant, and as such the writer served under him as intern at St. Mary's Hospital. Even then one realized that Doctor Judd was to make for himself a world-wide reputation in surgery, but the remarkable part of it was that he himself was totally unaware of doing anything more than his particular job at the moment. How well he did it those of us who served under him knew and the world soon came to know, realizing it better throughout his whole professional life than he did himself.

In that trait of modesty lay much of his greatness,—not that Starr Judd was not always confi-

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\* From *The Diplomat*, January, 1936.

dent of himself, but his simplicity of soul did not admit that doing one's work supremely well was anything more than should be expected. With modesty, he combined energy, efficiency, and common sense. He was always intensely interested in scientific medicine, but he had the rare gift of knowing, it seemed almost intuitively, that part of it worthy of clinical application.

His energy was prodigious, and the writer knows of no other who could shoulder an equal amount of surgical responsibility and carry it through with as little outward ruffling as Starr Judd showed. With all of this he had also an unusual capacity for friendship. He was invariably kind to his subordinates, while expecting of them the same earnestness in their work which he showed.

The medical world knows of his interest in public medicine, and the surgical world particularly of the vast number of original articles published either alone or with one of his juniors at the clinic. The fact that he became the active surgical head of this great clinic, president of his state society and of the American Medical Association, etc., are well known also, but what may not be so well appreciated are those characteristics that made him great. His passing takes the one to whom so many surgeons themselves would have gone when either they or any member of their family needed surgical help. This is the finest tribute that surgery could give him, since those who are qualified to know recognized that in him were combined vast experience interpreted by a fine intelligence. On the whole one does not see his kind often. He did have the great advantage of opportunity under inspiring masters, but opportunity found in him a man endowed by nature with the necessary qualities of greatness to meet it halfway.

J. Stewart Rodman, M.D.,

Professor of Surgery, Women's Medical College, Philadelphia,  
Medical Secretary, National Board of Medical Examiners.

RECENT ADVANCES IN TUBERCULOSIS

(Continued from page 109)

They feel that a fundamental principle governing the pathogenesis of pulmonary tuberculosis in man is that during childhood susceptibility to the benign primary type of pulmonary tuberculosis is limited to uninfected children, whereas susceptibility to phthisis is limited to infected tuberculin sensitive children.

If these observations from Lymanhurst are correct, and there are many reasons to believe they are, then one can only conclude that it is far more desirable to grow up having a negative tuberculin reaction. It is the child with the positive tuberculin reaction who is the potential consumptive of tomorrow, and who, after ten years of age, re-

quires close supervision roentgenologically and physically in order that disease may be detected early and at a time when the chances for a cure are greatest, and before he becomes a spreader of tubercle bacilli among his associates.

There is much more which might be said about recent advances in our knowledge of tuberculosis but perhaps what has been written here is sufficient to indicate that we now possess a greater and more intelligent understanding of the modus operandi of tuberculosis as it affects the human being, and that through cooperation of all those concerned with the problem of tuberculosis eradication, the way now seems clear to achieve this most desirable end.

704 Equitable Building.

STATE DEPARTMENT OF HEALTH

(Continued from page 105)

this service, each donor received five dollars. Plans are under way to do similar work in the Council Bluffs area during February. Arrangement has been made with M. E. Barnes, M.D., Director, for the processing of serum at the State Hygienic Laboratories in Iowa City.

Following is the tentative arrangement for distribution of convalescent scarlet fever serum:

- 1. Not to exceed one-half of the total amount of serum will be allocated for use in caring for indigent patients. No charge will be made for serum in such cases.
- 2. Not less than 25 per cent of the serum available must be sold at the regular price of \$4.00 for each twenty cubic centimeter vial in order to defray expenses incident to obtaining and processing of same.
- 3. Special consideration will be given to those persons bordering on relief.
- 4. There will be a courtesy price for members of physician's families.

Physicians desiring to use convalescent scarlet fever serum may place their order by telegram, night letter or telephone. Phone numbers at the State Department of Health are as follows: 8:00 a. m. to 5:00 p. m., 4-9111, Extensions 137 or 103; after 5:00 p. m., 7-1417 or 5-0453.

PREVALENCE OF DISEASE

Dec. '35			Nov. '35		Dec. '34		Most Cases Reported From	
Diphtheria .....			92		88		36	
							Black Hawk,	
							Des Moines	
Scarlet Fever .....			694		418		246	
Typhoid Fever .....			17		43		14	
Smallpox .....			32		10		9	
Measles .....			23		23		3,081	
Whooping Cough ..			66		109		59	
Cerebrospinal								
Meningitis .....			7		7		4	
Chickenpox .....			545		354		476	
Mumps .....			914		443		342	
Poliomylitis .....			10		6		2	
Tuberculosis .....			15		15		18	
Undulant Fever .....			11		4		7	
Syphilis .....			90		102		125	
Gonorrhea .....			138		149		151	
							(For State)	
							Dallas	
							Black Hawk, Polk	
							Boone, Jasper	
							Clinton, Decatur	
							(For State)	
							(For State)	
							(For State)	
							(For State)	



# THE JOURNAL BOOK SHELF

## BOOKS RECEIVED

- DISEASES OF WOMEN**—By Harry S. Crossen, M.D., professor emeritus of clinical gynecology, Washington University School of Medicine; and Robert J. Crossen, M.D., instructor in clinical gynecology and obstetrics, Washington University School of Medicine. Eighth edition, entirely reset, with 1058 engravings. C. V. Mosby Company, St. Louis, 1935. Price, \$10.00.
- THE EVALUATION OF SYMPTOMS**—By Oliver T. Osborne, M.D., professor of therapeutics, emeritus, and formerly clinical professor of medicine, Yale University. Yale University Press, 1935. Price, \$3.50.
- FOR AND AGAINST DOCTORS**—By Robert Hutchison, and G. M. Wauchope. William Wood and Company, Baltimore, 1935. Price, \$2.00.
- THE HUMAN FOOT**—By Dudley J. Morton, associate professor of anatomy, College of Physicians and Surgeons, Columbia University. Columbia University Press, New York City, 1935. Price, \$3.00.
- IMMUNOLOGY**—By Noble Pierce Sherwood, M.D., professor of bacteriology, University of Kansas. Illustrated. C. V. Mosby Company, St. Louis, 1935. Price, \$6.00.
- INFANT NUTRITION**—By William McKim Marriott, M.D., professor of pediatrics, Washington University School of Medicine, St. Louis. Second edition. C. V. Mosby Company, St. Louis, 1935. Price, \$4.50.
- INTERNATIONAL CLINICS, Volume IV, Forty-fifth Series**—Edited by Louis Hamman, M.D., visiting physician, Johns Hopkins Hospital, Baltimore. J. B. Lippincott Company, Philadelphia, 1935.
- MEDICAL TREATMENT OF GALLBLADDER DISEASE**—By Martin E. Reffuss, M.D., clinical professor of medicine, Jefferson Medical College; and Guy M. Nelson, M.D., instructor of medicine, Jefferson Medical College. 465 pages with 113 illustrations. W. B. Saunders Company, Philadelphia and London, 1935. Price, \$5.50.
- THE NATIONAL FORMULARY**—Sixth edition prepared by the Committee on National Formulary by authority of the American Pharmaceutical Association. Official from June 1, 1936. Published by the American Pharmaceutical Association, Washington, D. C., 1935.
- NEW PATHWAYS FOR CHILDREN WITH CEREBRAL PALSY**—By Gladys Gage Rogers, and Leah C. Thomas. The Macmillan Company, New York City, 1935. Price, \$2.50.
- NURSERY EDUCATION—THEORY AND PRACTICE**—By William E. Blatz, M.A., M.B., Ph.D., professor of psychology, University of Toronto, director, St. George's School for Child Study. William Morrow and Company, New York, 1935. Price, \$3.50.
- THE PARATHYROIDS IN HEALTH AND IN DISEASE**—By David H. Shelling, M.D., Johns Hopkins University and Hospital. Illustrated. C. V. Mosby Company, St. Louis, 1935. Price, \$5.00.
- PRESCRIPTION WRITING AND FORMULARY**—By Charles Sclomon, M.D., assistant clinical professor of medicine, Long Island College of Medicine. J. B. Lippincott Company, Philadelphia, 1935. Price, \$4.00.
- THE SPECIAL PROCEDURES IN DIAGNOSIS AND TREATMENT**—By Don Carlos Hines, M.D., clinical instructor in medicine, Stanford University. Published by the Stanford University Press.
- SURGERY: QUEEN OF THE ARTS**—By William D. Haggard, M.D., professor of clinical surgery, Vanderbilt University School of Medicine, 389 pages with 41 illustrations. W. B. Saunders Company, Philadelphia and London, 1935. Price, \$5.50.

## BOOK REVIEWS

### THE CRIPPLED AND DISABLED

By Henry H. Kessler, M.D., Newark, New Jersey. Columbia University Press, 2960 Broadway, New York City, 1935. Price, \$4.00.

The past decade has seen a rapid change in the social order and a reversal in attitude concerning the disabled and unemployed. It seems entirely timely then that a competent observer in this field should prepare this sociologic and economic discussion concerning the crippled and disabled.

The author reviews the legislation in the United States as it affects the vocational adjustment of the disabled persons, and where value is to be derived from a comparison with practices in foreign countries, their laws are critically analyzed. The author discusses his problems under five general heads: the child cripple, the industrially disabled, the war-disabled, the chronically disabled, and those blind, deaf or dumb.

Specific and general legislation for these classes is analyzed and the weaknesses of the existing laws pointed out. Each section is closed by a summary of the chapter's contents, which affords the reader the opportunity of discovering in advance whether the chapter may contain the material which he requires. An extensive bibliography is furnished.

### THE 1934 YEAR BOOK OF GENERAL THERAPEUTICS

Edited by Bernard Fantus, M.D., professor of materia medica, pharmacology and therapeutics, University of Illinois College of Medicine. The Year Book Publishers, Chicago, 1935. Price, \$2.25.

This book discloses the fact that considerable activity is taking place on all therapeutic fronts; drug, serum, light, radium, x-ray and others. Therapeutics is noticeably invading the field of surgery. Beginning with the injection of varicose veins it spread to hemorrhoids and hydrocele, and now the injection method of treating hernia is commanding consideration. Hyperpyrexia by diathermy is becoming more tangible. Any degree of fever can be produced and maintained for any interval, the patient's tolerance being the only criterion. Fever produced in this way is thought safer than fever produced by foreign proteins, since it is easily controlled.

The success of pneumothorax in the treatment of tuberculosis has now led to the use of the same idea in cases of intestinal tuberculosis by producing a pneumoperitoneum. Alum precipitated diphtheria toxoid is a distinct step over the former method of preparation, since only one injection is necessary,

absorption is slower, and reactions are greatly reduced or entirely absent.

A new use has been discovered for the sex hormone in widening their therapeutic applications; theelin is being used in involutional melancholia, gonorrheal vaginitis in children, and in the case of undescended testicle in males, tuitral, an anterior pituitary-like substance is of help.

Vitamin therapy has been overdone at times, that is, it has been prescribed where no vitamin deficiency existed. While overdosing is probably harmless, some instances have occurred in which unfavorable effects have been observed. The milk and banana diet in obesity, and the raw apple diet in dysentery, must be recorded as advances in dietetics. The deadly snakes have been made to yield their assistance to man; and snake venom from the cobra and others of the vipera is now used as a hemostatic in certain hemorrhages, as well as a satisfactory analgesic for some types of intractable pain. Numerous other drugs, either new or used in new ways, are recorded.

The perusal of this book is attended with considerable interest and benefit.

F. R. H.

#### INTERNATIONAL CLINICS, VOLUME II

Edited by Louis Hamman, M.D., Johns Hopkins Hospital, Baltimore. Volume II, Forty-fifth Series. J. B. Lippincott Company, Philadelphia and London, 1935.

In this number of the well established International Clinics valuable papers appear dealing with heart pain of organic and functional origin, the prognosis in heart disease, epilepsy in childhood, and chronic bronchial stenosis. Eleven other formal papers give up-to-the-minute consideration to timely medical themes. The two closing papers in the volume discuss the recent progress in obstetrics and pediatrics; the first describing the anemias of pregnancy; and the second the diagnosis and treatment of pyuria in childhood. The volume is illustrated.

#### CURRENT LEGAL THOUGHT

Current Legal Thought: Medical Jurisprudence Number, ii:1-150 (October) 1935.

Published at 245 Broadway, New York.

Price, this issue \$1.50.

This issue of the magazine, Current Legal Thought, designated as the lawyers' digest of law reviews, is devoted to the subject of medical jurisprudence. This survey will be of unusual interest to physicians since it is a compilation of legal thought based upon actual court decisions.

It is comprised of two major divisions; one, the law covering doctors and the practice of medicine; two, the branches of medical sciences essential to law administration and the fundamental legal concepts applied to the medical sciences in their utilization by law. In the first section the problems of licensure; the rights and duties of a physician; his relation to patients, colleagues and the state; the law of malpractice and defense, all receive full consideration.

The second part treats the more important problems arising in the law of contracts, torts, criminal law, marriage and divorce, wills, insurance, workmen's compensation, constitutional law, and evidence, upon which light is shed by the medical sciences.

Original sources are cited in each article providing for a more extended reading of the court decisions upon which the review is based.

#### ARTHRITIS AND RHEUMATOID CONDITIONS

Ralph Pemberton, M.D., professor of medicine, Graduate School of Medicine, University of Pennsylvania. Second edition, thoroughly revised. Illustrated with 69 engravings. Lea & Febiger, Philadelphia, 1935. Price, \$5.50.

Rheumatic and rheumatoid conditions are among the most prevalent of the chronic diseases coming to the attention of the practicing physician. In the past very little could be promised to this group of patients and the disease frequently progressed with increasing degrees of invalidism.

To arouse general interest and observations into the causes, course and treatment of rheumatic conditions, this author prepared his first edition of this work some five years ago. He attempted to review the then current knowledge of these diseases and their accepted management. His own observations have multiplied since his first edition and he has drawn generously on the experiences of others. Because of these facts and to maintain interest in rheumatic diseases, the author now presents this second revised edition of his work. Every physician who will carefully read the introduction to this volume will be impressed with the far-reaching economic and social effects which result from these diseases and will obtain a viewpoint which will demand his careful study of the entire volume.

Of immediate interest to every physician will be the sections devoted to the various forms of treatment now employed with a critical discussion of each therapeutic procedure. The author does not attempt to outline a single treatment nor, in fact, would his findings support the thought that only a single treatment is sufficient. With an appreciation of all forms of treatment, and their scope of usefulness, the physician will readily follow that form most suitable in the case coming to his attention. This valuable work should have a large distribution among all practicing physicians.

#### A MARRIAGE MANUAL

A Practical Guide Book to Sex and Marriage, by Hannah M. Stone, M.D., and Abraham Stone, M.D. Simon and Schuster, New York, 1935. Price, \$2.50.

This book has been written by two physicians who have had a rather unique experience in contacting persons requiring information concerning the essential facts of mating and reproduction. In form, the book follows closely the question and answer style which the authors feel permits greater directness in



writing and more completely covers the problems which confront the average person. The scope of the work varies little from that ordinarily covered in works of this sort in discussing, first, the biology of marriage, the mechanism of reproduction, the prevention of conception, and, finally, the sexual harmonies and disharmonies of the married couple.

The book has been written obviously for the normal individual and presents sexual matters as experienced by persons physically and mentally sound. Practicing physicians will be interested in the manual since it adequately fills the need for a text of information on sexual matters so often encountered by the physician.

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#### THE 1934 YEAR BOOK OF THE EYE, EAR, NOSE AND THROAT

The Eye, by E. V. L. Brown, M.D., professor of ophthalmology, University of Chicago, and Louis Bothman, M.D., associate professor; The Ear, Nose and Throat, by Geo. E. Shambaugh, M.D., professor of otology, rhinology and laryngology, Rush Medical College of University of Chicago, and Elmer W. Hagens, M.D., assistant clinical professor of otolaryngology, Rush Medical College, University of Chicago. The Year Book Publishers, Chicago, 1934. Price, \$2.50.

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#### THE 1934 YEAR BOOK OF PEDIATRICS

Edited by Issac A. Abt, M.D., professor of pediatrics, Northwestern University Medical School; with the collaboration of Arthur F. Abt, M.D., associate in pediatrics, Northwestern University Medical School. The Year Book Publishers, Chicago, 1935. Price, \$2.25.

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#### THE 1934 YEAR BOOK OF DERMATOLOGY AND SYPHILOLOGY

Edited by Fred Wise, M.D., professor of clinical dermatology and syphilology, New York Postgraduate Medical School and Hospital, Columbia University; and Marion B. Sulzberger, M.D., associate in dermatology and syphilology. The Year Book Publishers, Chicago, 1935. Price, \$3.00.

Earlier reviews of the several volumes previously issued in this series, reflect the general scheme employed in the preparation of these condensed and epitomized surveys of the year's progress in medical science as reflected by a search of current medical literature. Agreeable to the same basic plan, the three above captioned volumes have appeared to make the year's survey complete. In each instance the volume has been prepared by a distinguished editorial group assuring authoritativeness, and each reflects the latest thoughts and developments in the particular specialty. For the busy physician these carefully prepared volumes offer a valuable post-graduate form of study.

#### MEMOIRS OF A SMALL TOWN SURGEON

By John Brooks Wheeler, M.D., Emeritus Professor of Surgery, University of Vermont, College of Medicine. Frederick A. Stokes Company, New York, 1935. Price, \$3.00.

As he approaches the sunset of life, many a physician looks back with pride upon his years of service and accomplishments. It is rare indeed that these reflections are recorded in permanent form. It is interesting, therefore, to every physician when a colleague—particularly one with a distinguished record of outstanding service—undertakes this task.

In this volume of memoirs, prepared by Dr. Wheeler, the older physician will find much which will bring to his mind personal experiences, hardships and tribulations, of the early physician. To the more recent graduate the volume gives insight into the problems which have confronted the physician in the past, and the means which have been devised to meet them.

Written as a narrative, rich in local color and antidote, the volume is recommended not only as a historical medical document but also as an excursion into the field of pleasant reading.

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#### POLIOMYELITIS

By John F. Landon, M.D., attending physician, Willard Parker Hospital, New York City; and Lawrence W. Smith, M.D., pathologist, Willard Parker Hospital. The Macmillan Company, New York, 1934. Price, \$3.00.

Since the widespread epidemic of poliomyelitis in 1916 several valuable works on this disease have appeared, but, inasmuch as no comprehensive discussion of this subject has been made within the past two years, it would seem timely that intimate observers of the 1931 epidemic of poliomyelitis in New York City should set down their observations and bring the discussion of this subject entirely up to date.

It is particularly valuable to the practicing physician to have such controversial subjects as the use of convalescent serum therapy and respirator treatment critically analyzed. There appears to have been a considerable change in the viewpoint concerning the orthopedic treatment of diseases resulting from the immediate or residual paralysis and the authors have attempted to cover this field with thoroughness.

No attempt has been made to furnish an extensive bibliography, although a short accessible reference list follows each chapter. Rules and regulations concerning the nursing care, particularly concerning the aseptic technic required, and in the administration of antitoxins, are reported in the closing sections of this work.

This valuable volume should be made accessible to all physicians who treat this disease, either in its active stage or in attempting corrective therapy necessary to relieve the resulting paralysis.

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### HYSTERECTOMY

#### A STATISTICAL STUDY

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of Iowa

Hysterectomy, the most common major operation in gynecologic practice, has provoked considerable discussion in regard to the respective merits of the subtotal and total abdominal and the vaginal technics. Since these three procedures have been employed extensively, it was decided to survey the results of all hysterectomies performed in the Department of Obstetrics and Gynecology of the University Hospitals during the seven and one-half year period from July 1, 1926, to December 31, 1933, with respect to morbidity and mortality.

#### General Data

There were thirty deaths, 4.1 per cent among a total of 739 hysterectomies. The fatalities and morbidity rates following the various types of operative procedure are shown in Table I.

TABLE I

Type of Operation	Abdominal			Vaginal
	Subtotal	Total		
		Conser- vative	Radical*	
Total number of operations . . . . .	274	300	14	151
Average age of patients . . . . .	37	44	51	47
Average postoperative hospital days . . . . .	16 8	17.1	26 8	16 1
Average postoperative days with temperature of 101 degrees or more . . . . .	2 0	2 4	3.9	2 4
Percentage of patients with tem- perature of 101 degrees or more	61.7	68.3	78.6	53.0
Total number of deaths . . . . .	10	15	2	3
Mortality per cent . . . . .	3.6	5.0	14.3	2.0

\*Wertheim technic.

#### Type of Operation

Supravaginal hysterectomy was the procedure of choice until July, 1931, except when removal

\* Now residing at Toronto, Ontario, Canada.

of the cervix was demanded by malignancy of the uterus or by serious cervical disease, whereas after that date total hysterectomy was performed practically to the exclusion of the subtotal procedure. The gradually increased employment of vaginal hysterectomy has resulted from the realization that many benign conditions of the uterus can be treated satisfactorily in this fashion.

#### Indications for Operation

The numerous specific indications for hysterectomy can be arranged into seven groups under the various types of operative procedure.

TABLE II

Indication	Abdominal			Vaginal
	Subtotal	Total		
		Conser- vative	Radical	
1. Fibroids with and without pelvic inflammatory disease, ovarian cysts, etc.....	135	145	1	75
2. Pelvic inflammatory disease, gonorrheal, puerperal, and tu- bercular.....	64	31	0	2
3. Malignant disease of cervix, body, ovary or tube.....	5	59	13	5
4. Conditions associated with pregnancy, including thera- peutic abortions with hysterec- tomy for sterilization.....	18	11	0	4
5. Benign ovarian tumors.....	9	11	0	1
6. Relaxations and prolapse.....	25	10	0	46
7. Miscellaneous.....	17	33	0	18
	273	300	14	151

It is evident that the selection of the operative procedure depended upon the operator's immediate preference rather than upon the pathologic condition, except that total hysterectomy was used almost exclusively when malignant disease of the upper genital tract was present. The radical (Wertheim) abdominal operation was limited to those patients who suffered from carcinoma of the corpus or cervix, except in one instance where it was performed upon the basis of a clinical diagnosis of corpus malignancy, unsubstantiated by histologic study. The thirty-three operations per-



formed for conditions associated with pregnancy included ectopic gestation, twelve; therapeutic abortion with sterilization, ten; failure to diagnose an early pregnancy in the presence of uterine fibroids, four; and cesarean hysterectomy, three.

Postoperative Complications

Complications are extremely common during and following major gynecologic operations, but relatively few are of serious import. Table III notes the complications encountered in this series, but does not indicate the actual number of patients who suffered complications, since certain individuals appear under more than one heading.

TABLE III

Complication	Abdominal						Vaginal	
	Subtotal		Total					
			Conser- vative		Radical			
	No.	%	No.	%	No.	%	No.	%
Wound infection, all de- grees	62	22.6	42	14.0	2	14.3	..	....
Cystitis and/or pyelitis...	13	4.8	17	5.7	10	71.4	13	8.6
Postoperative hemorrhage	3	1.1	2	0.7	0	0.0	3	2.0
Infection								
Thrombophlebitis.....	4	1.4	6	2.0	0	0.0	7	4.6
Peritonitis.....	6	2.2	6	2.0	0	0.0	1	0.7
Septicemia.....	1	0.4	4	1.3	0	0.0	2	1.4
Pulmonary.....	7	2.5	7	2.3	0	0.0	0	0.0
Cardiac failure.....	3	1.1	4	1.3	1	7.2	1	0.7
Injury to								
Ureter.....	0	0.0	6	2.0	2	14.3	0	0.0
Bladder.....	1	0.4	3	1.0	0	0.0	1	0.7
Bowel.....	1	0.4	1	0.3	0	0.0	0	0.0
Total.....	101		98		15		28	

The wound infections varied from insignificant collections of serum beneath the skin to those involving the full thickness of the abdominal wall. It is perhaps significant that primary wound healing was more common with total hysterectomy, possibly because the potentially infected cervix was not invaded. On the other hand, other forms of infection, presumably incident to the operative procedure, were slightly more common following total (7.6 per cent) than after subtotal hysterectomy (6.5 per cent). Injuries to the ureter, bladder and bowel were more numerous during total extirpation of the uterus, but a considerable portion of such injuries can be explained by the fact that this operation was generally chosen in patients with the more serious pelvic diseases. Urinary tract infection was included as a complication only when it definitely prolonged convalescence. The traumatization and displacement of the bladder incident to conservative total abdominal and vaginal hysterectomy did not produce a much higher incidence of infection of the urinary tract than the subtotal procedure.

Convalescence

The duration of hospital stay was practically the same for the various types of hysterectomies except the radical abdominal (Wertheim) operation (Table I). However, fever (101 degrees or more) was more common after the total operations. Such comparisons are, however, more valid when the operations have been performed for similar indications. Tables IV and V show the various objective factors in convalescence in the largest groups with the same operative indications.

TABLE IV

Indication	Subtotal		Total (Conservative)		Vaginal	
	No. of cases	Days	No. of cases	Days	No. of cases	Days
Fibroid uterus.....	80	17.5	94	15.8	63	15.8
Pelvic inflammatory disease.....	60	16.8	27	17.5	5	11.8
Fibroid with pelvic inflammatory disease	47	16.2	31	14.4	2	13.0
	187	16.9	152	15.8	70	15.4

Inasmuch as the majority of the total hysterectomies were performed during the period when the demand for beds was greater than in the earlier years of elective subtotal operations, the somewhat shorter average hospital stay is not significant. The more rapid convalescence after vaginal operations is generally recognized.

TABLE V

Indication	Subtotal			Total (Conservative)			Vaginal		
	No. of cases	Temp. 101° or more		No. of cases	Temp. 101° or more		No. of cases	Temp. 101° or more	
		Per cent	Aver. days		Per cent	Aver. days		Per cent	Aver. days
Fibroid uterus...	80	63	2.2	94	62	2.1	63	59	3.0
Pelvic inflammatory disease....	60	63	1.9	27	82	2.8	5	80	1.4
Fibroid with pelvic inflammatory disease....	47	64	2.1	31	65	1.6	2	50	0.5

Differences in the occurrence of febrile reactions and the duration of such reactions are not consistent and are probably not significant.

Fatalities

As noted in Table I, the gross mortality following total hysterectomy (5.0 per cent) was significantly higher than after the subtotal operation (3.6 per cent). Total extirpation of the uterus became the procedure of choice after July 1, 1931, when a change of personnel preceded the adoption of the new policy. This makes possible

a comparison of the two operations when they were employed by election (see Table VI).

TABLE VI

Type of Hysterectomy	July 1, 1926 June 30, 1931			July 1, 1931 Dec. 31, 1933		
	No. of Operations	Deaths		No. of Operations	Deaths	
		No.	Per cent		No.	Per cent
Subtotal.....	262	8	3.1	12	2	16.7
Total conservative.....	48	5	10.4	252	10	4.0
Total radical.....	0	0	0.0	14	2	14.3
Vaginal.....	47	0	0.0	104	3	3.1
	357	13	3.6	382	17	4.4

It is obvious that when either the subtotal or total operation was used routinely, the results were better than when it was employed only in selected cases. It is also apparent that the higher combined mortality rate in the second period was due largely to the greater death rate following total hysterectomy. It should, however, be stated that, during 1933, when no subtotal operations were performed, there were 138 total hysterectomies with only four deaths, a mortality rate of 3.0 per cent. On the other hand, during 1928 and 1929, 103 subtotal hysterectomies were performed with two deaths, 2.0 per cent. Such small groups of cases prove nothing, but these series indicate that there is a small inherently-greater risk in total hysterectomy, a hazard which is in part, and possibly entirely balanced by the fact that complete removal of the uterus for benign conditions eliminates the future risk of carcinoma of the cervix.

Mortality According to Indications

It is to be expected that the death rate will vary according to the indication for the intervention. Table VII presents such data.

TABLE VII

Indication	Subtotal			Total (Conservative)			Vaginal		
	No. of cases	Deaths		No. of cases	Deaths		No. of cases	Deaths	
		No.	Per cent		No.	Per cent		No.	Per cent
Fibroid uterus ...	80	2	2.5	94	3	3.2	63	3	4.9
Pelvic inflammatory disease....	60	1	1.7	27	1	3.7	5	0	0.0
Fibroid with pelvic inflammatory disease....	47	0	0.0	31	1	3.2	2	0	0.0
Totals.....	187	3	1.6	152	5	3.3	70	3	4.3

For these most common indications, subtotal hysterectomy carried the least risk. The death rate incident to the radical operative treatment of pelvic inflammatory disease was considerably

higher when complete hysterectomy was performed, a fact which may be related to the greater technical difficulties encountered in the deeper pelvic dissection in the presence of adherent viscera. Vaginal hysterectomy, which is ordinarily the safest type of extirpation of the uterus, had an especially high mortality rate when performed for uterine fibroids. By contrast, fifty-one vaginal hysterectomies were performed in the course of operations for prolapse without a death.

Causes of Death

The immediate causes of death are listed in Table VIII. In twenty-three instances (77 per cent), autopsy was performed.

TABLE VIII

Cause of death	No.	Per cent of total
Peritonitis .....	10	33.3
Septicemia .....	8	26.6
Pneumonia .....	4	13.3
Cardiac failure .....	2	6.6
Miscellaneous:		
Hemorrhage, edema of brain, metastatic carcinoma, shock, uremia, mechanical intestinal ob- struction (one case each).....	6	20.2
	30	100.0

In eight instances death occurred within forty-eight hours following operation (septicemia, three; peritonitis, one; bronchopneumonia, one; shock, one; cardiac failure, one; and metastatic carcinoma, one), while the remaining twenty-two deaths occurred from two to 116 days after operation, infection being the most frequent cause of exitus, (peritonitis, nine; septicemia, five; and pneumonia, three).

SUMMARY

Immediate operative results in 739 hysterectomies are reported. The total gross mortality was 4.1 per cent (thirty deaths). Subtotal hysterectomy, which was the operation of choice until June 30, 1931, had a mortality of 3.6 per cent, while total hysterectomy which was preferred after that date had a death rate of 5.0 per cent. The mortality after vaginal hysterectomy was 2.0 per cent. Among fourteen radical total (Wertheim) operations there were two deaths (14.3 per cent). Infection (peritonitis, septicemia, and pneumonia) accounted for twenty-two deaths, 73.2 per cent of the fatalities.

There was no significant difference in the average number of postoperative hospital days nor in the occurrence of febrile reactions (101 degrees or more), except that in the fourteen radical (Wertheim) abdominal total hysterectomies, all these averages were increased appreciably. Wound infections were more common after subtotal hys-



terectomies, but injuries to neighboring hollow viscera (bladder, bowel, and ureter) were much more numerous when total abdominal hysterectomy was performed.

Total hysterectomy even when employed as an operation of choice, carried an appreciably higher mortality (4.0 per cent) than did the subtotal operation under similar elective conditions (3.0 per cent).

### MODERN POSTPARTUM CARE AND TREATMENT\*

THOMAS F. HERSCH, M.D., Cedar Rapids

In recent years obstetricians have stressed prenatal care to such an extent that the general practitioner, as well as the specialist, appreciates the value of this phase of obstetrics. At the first visit the doctor often discovers abnormal conditions which are preventable, notably the toxemias. Many prenatal clinics exist and amply justify their maintenance, but few postpartum clinics exist despite their very distinct need. For the most part postnatal care consists of attention from ten to fourteen days, and a final examination about four weeks later.

Properly speaking postpartum care begins in the third stage of labor; there being no latent period between obstetric and gynecologic observation. Postpartum care is really prophylactic gynecology. Blood loss is often a determining factor in convalescence, and prevention of hemorrhage is the best treatment. Normally, blood loss should not exceed two or three hundred cubic centimeters. The policy of watchful waiting for spontaneous separation of the placenta is much safer than undue manipulation to hasten same. As soon as the placenta is released the uterus may be pushed downward in the midline. Following delivery all perineal lacerations should be repaired. If the patient is in the hospital, the more marked lacerations of the cervix should be sutured. If she is in the home where light or other conditions are unsatisfactory, it is best not to repair these unless hemorrhage demands it, and then some form of continued pressure might be the better way of control. If exhaustion demands a more rapid delivery it is best to do an episiotomy and low forceps delivery. An episiotomy is easier to repair and leaves less trauma. Unless exhaustion is severe, repair should be done at once, but if necessary it may be delayed for twenty-four hours. Where there is a respiratory infection, a local anesthetic, rectal with avertin, or ether oil and nembutal should be used.

The puerperal period begins after delivery of the placenta and does not end until all of the reproductive organs have returned to their normal states. It usually lasts from six to twelve weeks, sometimes longer. It is generally divided into a strictly lying-in period from ten to fourteen days, and a further period from four to eight weeks, when she returns to her physician for the so-called final examination.

#### THE LYING-IN PERIOD

Immediately following delivery the mother requires rest, and if necessary, she should be given sedatives. Because many neuroses are born with the baby, it is most essential that the mother be given freedom from worry. No visitors should be allowed. The baby should not be allowed to nurse for eight hours. Ergot in doses of two drachms three times a day may be given to aid involution. The shoulders should not be elevated until all danger of hemorrhage has passed. Locally, ice may be useful. Involution also takes place in all tissues of the pelvis, as well as the ureters, and the abdominal wall. It may be hindered by infection, relaxation of the tissues of the pelvis, retroversion, constipation, etc. Vulva pads are not necessary, and they often dam up the lochia or contaminate the area with fecal matter. A large pad should be placed below the buttocks and changed as often as necessary. Douches are not given at any time. The vulva should be treated as an open wound, and whatever comes in contact with it should be sterile. As soon as delivery has begun the patient becomes a surgical case, and continues as such until she is discharged.

The patient must be encouraged to urinate in due time following delivery and every effort made to be successful. Before or immediately following delivery an examination should be made for a distended bladder. The passing of urine does not of itself prove that the bladder is empty, or even functioning properly. If necessary, catheterization of the bladder should be done under the strictest asepsis. The instillation of one ounce of one per cent silver nitrate or two per cent mercurochrome is advisable and the solution should be left in the bladder until the residue left, following urination, is less than one ounce. The bowels should be left alone for from two to three days, when a soapsuds enema will be sufficient. An ounce of mineral oil twice a day with a proper diet, may obviate the need of further laxatives. Constipation never produces fever. Where there is a third degree laceration no bowel movement should be allowed until the fifth day. The diet should consist of a general diet from the day of delivery, unless there is some contraindication.

\* Presented before the Eighty-fourth Annual Session, Iowa State Medical Society, Davenport, May 8, 9, 10, 1935.

Extra feedings even are allowed. If not contraindicated the protein content should be high. The patient has done a great deal of work and consequently needs good food to replace that which has been expended in energy. Women who have had toxemias, pyelitis, or a blood pressure of over 130 systolic should be watched. After delivery in at least one-fourth of the eclampsias, convulsions appear for the first time. This again emphasizes the need of daily examinations of blood pressure as well as urinalysis. A low salt and protein diet here is desirable. Often we think more about saving the mother's life than of her subsequent health.

The breasts should be washed with soap and water. The nipples should be kept clean but not massaged or given unnecessary attention because this is likely to injure them and cause infection, with subsequent abscess formation. No antiseptics should be applied, but rather a square of sterile gauze kept in place by adhesives. After nursing they should be allowed to dry and not be too greatly compressed. A mixture of bismuth and castor oil to make a paste may be applied over them. An infection of the nipples does not usually result in an abscess until from eight to fourteen days, so all fissures should be carefully treated. Pendulous breasts may be kept in place by adhesive strips applied to keep them forward and upward. A special brassiere devised by Royston of Washington University may be used. Fissures are best treated by rest, but since this is practically impossible, pumping several times a day helps to relieve the distention. Ten per cent silver nitrate applied to the fissure is often of aid.

Each baby should be encouraged to nurse, both for the benefit of himself, as well as the mother. Involution is much more rapid under such conditions. Until the milk appears, the babe should nurse every four hours but not longer than five minutes. Too much tugging at the empty nipple causes inflammation, as well as possible infection. When milk appears, nursing should be on each breast with each nursing, every three hours for two weeks, after which time, it may be performed every four hours. Night nursing should be the practice for at least four weeks. If the babe is premature it should be given special care, both as to temperature and feeding. The mother should always lie down when nursing, and should not observe the baby too closely, as it is likely to produce eye strain, headache, and backache. Caked breasts are treated with support and ice bags, while partial pumping is helpful. Massage should not be done at any time. Opiates are given only to relieve pain. Within a few days the law of supply

and demand relieves the situation. Drying up the breasts needs no special treatment. Binding and the local use of ice is all that is needed. Massage, pumping, ointments, etc., are of no value. Limitations of fluids and catharsis neither are of value. Simple mastitis is treated with rest and ice. Pumping is helpful. If it is not relieved in forty-eight hours the probability is that it has progressed to abscess formation.

Pus in the breast may be difficult to diagnose. The appearance of edema, redness, fever, chill, etc., aids in the diagnosis. Needling the suspected mass often confirms the diagnosis. Abscesses which develop are either first, subcutaneous; or second, intramammary. The former should be operated upon with a radial incision at the most dependent portion, while the latter should be operated upon at the base, by raising the whole gland. Drainage should be by rubber dam, left until it is pushed out by the healing process. There is no so-called "milk fever." Visitors with colds must be kept away from both mother and babe. If the doctor is in attendance upon septic cases he should not treat the puerperal patient. Infected cases should be isolated, the patient placed in Fowler's position, and ice applied locally. Medication consists of ergot by mouth and pituitary extract hypodermically. Liquids should be forced, and the patient should receive an abundance of fresh air. Vaginal examinations should not be made at this time, but stitches, if present, may be removed. Fever after the second week may be due to pyelitis, phlebitis, meningitis, etc.

After pains are due to the efforts of the uterus to expel secundines or clots. Salicylic, (acetyl) five grains every three hours are helpful. Bleeding which occurs during the lying-in period may be due to inertia, retention of secundines or infection. The uterus should not be invaded except to control hemorrhages. Treatment is by ergot, pituitary extract, pressure, ice, etc.

After the second day, the normal patient is not only permitted to move about but is encouraged to do so. This aids drainage as well as involution. If the uterus is below the symphyses at the tenth day involution is satisfactory. From the second day she is urged to lie on her abdomen for one-half hour twice daily. Exercises are cumulative, beginning with the upper portion of the body and continuing, until by the fifth day all the joints are being exercised. When lochia alba appears she may use the knee-chest position. Whatever the value of these exercises she at least feels much better when she leaves the hospital. The only contraindications are severe lacerations, infections, and certain constitutional diseases. All exercises



are supervised by the nurse. Abdominal and breast binders are of no special value but may give comfort to the patient.

The patient is allowed to get up by the tenth day or before. (We feel that as long as the patient has had nine months of difficulty she should be given at least this much time to rest. It may not be essential but it is at least beneficial.) Before going home she should be instructed in the care of the baby as to feeding, bathing, etc. An examination is made before the patient leaves to see what damage has resulted from her experience. If subinvolution is present, ergot is prescribed, and hot douches ordered. If retroversion is present, the prescribed treatment is similar.

#### THE RECUPERATIVE PERIOD

When taken home the mother should be given every consideration. She should not resume normal activities until about the fourth week. During the first few weeks the mental condition is watched carefully, since the routine of the new baby, uncertain ventilation, fear of conception, etc., may bring her into a state bordering on a psychosis. This is especially true of primiparas. During this time such conditions as hyperthyroidism, pulmonary tuberculosis, cholecystitis, etc., may occur. Puerperal insanity is a real danger and if subsequent pregnancies are allowed to develop, this condition may reappear in a more severe type with each pregnancy. Recently two patients in my practice with this definite condition were noted, and with the third pregnancy, one of them had to be confined in the insane hospital for a year before she returned to normalcy. All patients having a history of toxemia are especially subject to this danger.

A final examination is recommended from six to eight weeks, at which time it is possible to examine with greater accuracy damages done to pelvic structures. The cervix is examined with the speculum and a strong light. Lacerations, eversions, discharges, cysts, etc., are noted and treated.

Retroversion is found in about 20 per cent before pregnancy, but in only ten per cent afterward. This also is the incidence in unmarried women. No treatment is advised unless complications exist. If, however, the uterus is found in a state of subinvolution the patient may practice the knee-chest, mule-kick or monkey-walk. Where retroversion is associated with subinvolution, and the uterus remains unchanged after these exercises, a pessary may be of considerable value, and should be worn for about two months. Later, when the pessary is removed if no symptoms appear, further treatment is unnecessary, but if symptoms persist

following its removal, then operative procedures may be justified. If bleeding persists during the recuperative period it may be due to subinvolution, polyps, or other pathologic conditions, especially chorioepithelioma. Treatment depends on conditions present.

The return of menstruation varies with different individuals. In those who do not nurse the baby it usually appears in about six weeks, while in those who do, it appears about the third to fourth month or in some, not until after the baby is weaned. The mother should be warned that the first period may be profuse. If the cervix is red, inflamed, bleeds when touched, or produces irritating discharges, the treatment is the electric cautery. These treatments given at seven to fourteen day intervals usually cure these "erosions" with a subsidence of all symptoms. No anesthetic is necessary. Cervical lacerations are also greatly helped, and cysts, fibrosis or hypertrophy, are often prevented. Cancer may thus be prevented, since there is an almost universal agreement that a definite relationship exists between the trauma of labor, subsequent cervical pathology and cancer of the cervix.

#### POSTPUERPERAL PERIOD

Many physicians call the examination made at the end of six to eight weeks the "final examination." They consider this as sufficient until another pregnancy begins, and this assumption is generally true. However, many patients have various pathologic conditions which need observation and treatment which an examination at the end of three months will discover. A yearly examination is also valuable. Dublin says 45 per cent of the deaths are due to puerperal infection. Polak stated that 60 per cent of our gynecologic work comes from our obstetric practice. About 33 per cent of our deaths could be saved by closer follow up examinations of those who have complications. Bacon states that 33 per cent of women with tuberculosis die one year after delivery. It is a record that one per cent of all mothers have injured hearts, and of these who have heart disease, 20 per cent die in the seven years following delivery. A mitral stenosis with decompensation often takes its tribute during the second week of the puerperium. Both nephritis and syphilis cause many intra-uterine deaths. With universal Wassermann examinations both mother and child could have been treated and the baby saved. It is stated that two per cent of white women and sixteen per cent of colored have positive Wassermann reactions. Gonorrhea causes frequent blindness, as well as sterility. Thyroid therapy in certain cases will prevent the crisis of

hyperthyroidism, and supply the babe with prophylactic treatment.

The infant should not be placed in cold water following birth because there is danger of pneumonia. Any mucus should be aspirated with a catheter. If there is difficulty in breathing, an oxygen tent is valuable. Birth injuries are all too common. Fractures of the humerus or clavicle are easily treated and may be justified, but they are a source of embarrassment at times. Paralysis of the arm following birth often leaves the infant a cripple for years, and it is better for us to conduct a proper examination at birth, and discover these troubles rather than for the mother or others to bring them to our attention.

Impetigo is a difficulty which all hospitals dread. It is a most annoying trouble to overcome. If the baby is sent home in this condition, the parents feel that there has been some neglect. Treatment by silver nitrate, 10 per cent to the blebs, will limit its spread. The use of ammoniated mercury five to ten per cent locally is used for the rest of the body. Hemorrhagic neonatorum will often stop with the injection of twenty cubic centimeters of the mother's blood intraperitoneally.

In closing, I should like to emphasize that, just as prenatal care saves the lives of many women and babies each year, so will postpartum care, if properly carried out, result in the prevention and cure of many abnormal conditions. Let us give women as much attention after their babies are born as before, and we shall avoid much misery.

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#### THE RHYTHM OF FERTILITY\*

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Within the past decade, the medical profession, and the laity as well, have become conscious of tremendous strides made in the studies of the physiology of the female sex cycle. While many studies had been made upon the physiology of the female genitalia, no contribution to medical literature had been made that was as far-reaching in its effects as the work of Hitchman and Adler in

1908 and the studies made by Novak in 1924. These men showed that the endometrium is not in a restive state from one menstrual period to another, but undergoes definite, rhythmic changes of development and degeneration at fixed periods in the menstrual month; and that the time of the menstrual cycle could, with certainty, be established by examination of the endometrial section. These studies made us "rhythmic-conscious," that is, made us realize more and more, that the whole generative system was subject to fixed periodicity. The work of Smith and Engle, and Zondek and Aschheim showed us the dependence of this periodicity upon the anterior hypophysis, with the result that our present knowledge of the physiology of menstruation stands almost fool-proof and is not likely to be basically disturbed. The future may bring elaborations but the fundamentals will remain intact.

Briefly, menstruation is brought about by the desquamation and consequent bleeding of the endometrium which has previously been prepared for the gravidic state by the corpus luteum. Under the influence of the A hormone of the anterior pituitary gland, the graafian follicle in the ovary is ripened and the hormone elaborated by this follicle is responsible for the preliminary development of the endometrium. When the follicle is fully ripened and bursts, extruding its ovum (ovulation) the resultant cavity fills with blood, undergoes organization, elaboration, and forms the corpus luteum which elaborates a hormone of its own and is responsible for the further development of the endometrium to its pregravidic state (secretory stage of Schroeder). This corpus luteum developmental stage is controlled and elaborated by the B hormone of the anterior pituitary gland. If the ovum becomes fertilized, the corpus luteum continues its function and the early embryo finds a favorable nidus within the uterus. If the ovum is not fertilized, the corpus luteum, through some inherent action of its own or under the influence of the anterior hypophysis ceases to elaborate its hormone and the sudden withdrawal of this (nutritive?) hormone is followed in two or three days by degeneration and desquamation of the pregravidic endometrium with resulting menstruation.

We see from our knowledge of physiology that before true menstruation takes place there must be in the human female, three factors present: first, ovulation; second, development of corpus luteum; third, premenstrual endometrium. These three factors follow in sequence and it is quite logical that it takes several days for the building up process of the pregravidic endometrium. This building up process, that is, the period extending

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from the rupture of the graafian follicle to the menstruation is thought by Ogino to be about twelve days and by Knaus about fourteen days; that is to say, the former believes that ovulation takes place at the latest, twelve days before the onset of the next menstruation. However, Ogino, after examination at laparotomy of many ovaries, concludes that rupture of the follicle (ovulation) may occur any time in the five-day period from the twelfth to the sixteenth day before the onset of the next menstruation. Knaus working experimentally upon animals and humans by noting the sensitivity of the uterus to injections of pituitrin comes to the conclusion that the rupture of the follicle takes place between the fourteenth to the sixteenth day before the next menstruation. One fact is evident both theoretically and clinically: that an interval of at least twelve to sixteen days is present between ovulation and the onset of the next period. From these data we see that there must be an ovulation period before there can be a corpus luteum, and that a period of preparation of at least twelve days must ensue before menstruation; therefore, the order of sequence of events is preliminary preparation, ovulation, pregravidic preparation, and then either pregnancy or menstruation.

For every pregnancy, of course, a union between a healthy spermatozoon and a healthy ovum is necessary. The spermatozoon must possess sufficient motility so that it can reach the fimbriated end of the fallopian tube in a short time. It has been demonstrated experimentally, and at laparotomy shortly before coitus, that healthy spermatozoa reach the tubes within two to three hours after they have been deposited in the vaginal vault. The old question of how long the spermatozoa live and retain their fertilizing power in the female generative tract confronts us, and it is a generally accepted fact that the limit is three days. In fact, it has been shown that spermatozoa from mammals whose testicles are extra-abdominal are devitalized and lysed by exposure to body heat for longer periods than three to four days.

The next question is the longevity of the life of the ovum, and since there have been many ideas upon this subject I shall not recapitulate irrelevant theories but come to the point; namely, that the human ovum lives only a few hours or at most, twelve hours, after its expulsion from the follicle unless, of course, it is fertilized. We have, then, as a basis for our calculation of the rhythm of fertility, a spermatozoon that may live and fertilize for a period of three days, a graafian follicle that may rupture any time within a five day period, and an ovum that, unfertilized, lives only a few hours. If we can coordinate these three factors into some

time element in the menstrual cycle, we shall have the period during which conception may take place. We know now that at least twelve days must elapse for the endometrium to develop to be a proper nidus for the nourishment of the growing embryo. There must of necessity, then, be a minimum lapse of twelve days between the rupture of the follicle and menstruation.

It follows naturally that conception can take place any time within the five-day ovulation period, and since spermatozoa may live for three days in the fallopian tube, we have a total of eight days during which conception is possible; the few hours of life of the ovum need not be considered in our calculation. The other days of the menstrual cycle are naturally sterile days, since there can be no union of the spermatozoa and ova.

The timing of this eight-day period in the menstrual cycle depends upon the length of the menstrual cycle. According to Ogino<sup>1</sup>, "notwithstanding the length of the menstrual cycle, the conception period is in the eight days from the twelfth to the nineteenth day before the subsequent menstruation." That is, five days of the ovulation period and three days for the life of the spermatozoa.

For the calculation of the fertile and sterile days of the menstrual month, granting a woman has a twenty-eight day cycle and twelve days are necessary for the preparation of the endometrium, we deduct twelve days from the expected day of the next menstruation for the endometrial development, and from the twelfth day, begin to count back five days for the ovulation period and three days for the life of the spermatozoon. We have the period of the twelfth to the nineteenth day inclusive before the next menstruation; these days are fertile, the remainder are sterile. In this simple mathematical process, we calculate backward. It is much easier to figure it this way, hence the value of keeping a calendar for at least several months in order to ascertain accurately the date of the next first day of menstruation.

However, nature does not always work with such regularity. In fact, menstrual cycles of equal length, month after month, occur in only a small percentage of women. My old professor in gynecology used to say of menstruation, "Every woman is a law unto herself." Many factors may enter to upset the regularity of the menstrual calendar; menstruation may be earlier or later than the twenty-eight day period, that is, the menstrual cycle may be considered fairly normal and still vary within a range of two to three days, as from twenty-eight to thirty or twenty-eight to thirty-one days. It is then difficult to estimate the conception period. Here let me repeat, that regardless

of the length of the cycle we have a twelve day preparation period from the rupture of the follicle to menstruation, so that if the menstrual cycle is lengthened the lengthening occurs at the beginning of the menstrual cycle, that is, from the end of the last menses to the first day of the conception period, and if the cycle is shortened, the shortening also comes between the end of the last menses and the first day of the conception period. However, since, with irregular menses we cannot accurately estimate the day of the next expected menstrual onset, we figure into our mathematical problem the maximum and the minimum days of the cycle. For the calculation of this we have two formulae:

Smulder's: Date of next menses of *maximal* cycle, minus twelve days, minus eight days, minus days of variation.

Example: 27 to 30 day cycle—last menstruation on June 3, date of next menses of maximal cycle, July 3 minus twelve days equals June 21, minus 8 days equals June 14, minus three days of variation equals June 11, thus making the conception period from June 11 to June 21.

Ogino's: Figured from the beginning of the last menses.

10  
plus  
Days of min. cycle  
minus  
28  
to  
17  
plus  
Days of max. cycle  
minus  
28

}

10  
plus  
27  
minus  
28  
to  
17  
plus  
30  
minus  
28

}

9 = June 11  
to  
19 = June 21

}

Conception  
period

In calculating, one must remember to include the first day of the menstruation. We do not, as yet, have many statistics upon the application of this Ogino-Knaus theory. Even the authors of this theory have too few cases under perfect control upon which to base an infallible report. We can well surmise the difficulty of keeping very many couples under perfect control for a long period of time. However, Miller<sup>2</sup> has recently reported on eighty-seven couples who strictly adhered to the rhythm theory over a period of several months and proved the workability of this theory. He reported the cohabitation record of 154 couples over a period of several months. "There were 2200 cohabitations both before and after the calculated fertile period, not one of which resulted in pregnancy." More recently Weinstock reported 416 pregnancies in as many women following a single coitus. These women were observed for a period of three months. He came to the conclusion that conception is possible on any day of the menstrual cycle, more so between the fifth and tenth day of the cycle. I have two objections to his conclusions. First, that from the

fifth to the tenth day of the menstrual cycle not only are some women still menstruating, but we know histologically that the endometrium is certainly not developed enough to become a suitable habitat for a growing embryo, and that in the ovary, the corpus luteum is undergoing recession and the new ovum is not yet developed. Second, any man who is able to control and limit 416 couples to a single coitus over a period varying from one to three months, may possibly be able to control Mother Nature herself, and with him I have no quarrel.

In conclusion let me state that the rhythmic cycle of fertility is theoretically sound according to our present knowledge of the physiology of the menstrual cycle and our studies on the lives of the spermatozoa and the ova. Statistics are still too few upon which to base a dogmatic assertion as to its practical application. No definite well controlled statistics can be available in less than two to three years. The whole subject is worth further study for it is quite possible that the application of this theory to the daily lives of women may solve economic and religious problems.

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NEPHRITIS AND PREGNANCY\*

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During the eight-year period from July 1, 1926, to June 30, 1934, 5,139 women were delivered in the Department of Obstetrics of the University of Iowa Hospitals. Of this number, forty-five women were found to have permanently damaged kidneys, due to previous infection or essential hypertension. Thus, the incidence of pregnant women with previous kidney damage was 0.88 per cent, or one in 114 patients. It must be emphasized that this study is not concerned with that general group of patients usually classified as "toxemia of pregnancy," but deals only with those patients who had renal, or vascular disease complicated by an intervening pregnancy. The purposes of this study, therefore, were; first, to outline and classify the symptoms and signs of renal disease in pregnancy as observed in this clinic so as to facilitate diagnosis of the condition; and second, to observe the effect of pregnancy upon patients suffering from nephritis or essential hy-

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pertension in an attempt to formulate suggestions for therapy.

Subjects

These forty-five pregnant women, found to have one form or another of kidney disease, were classified by Dr. W. M. Fowler of the Department of the Theory and Practice of Medicine after a careful review of all available data. The first group of fifteen patients had glomerular nephritis, while the second group of thirty patients included those with essential hypertension. This classification from the clinical story and findings was extremely difficult, and while admittedly not without error, will serve as a working basis for the present study. The number of patients constituting the subjects of the study is not large when considered from a statistical viewpoint. Nevertheless, it is felt that definite trends can be indicated on the basis of the observed data.

Table I gives general statistics regarding these women. It will be noted that the average age and average number of children is lower in the group with primary renal disease, and that a sat-

TABLE I

	Age Years		Pregnancies Number		Satisfactory explanation of etiology in	
	range	average	range	average	number	per cent
Glomerular Nephritis (15 patients)	18-39	29	1-13	4.3	9	60
Essential Hypertension (30 patients)	22-46	34	1-13	6.4	13	43

isfactory etiology was determinable in a greater percentage of the patients of this group. However, these factors lose some of their significance when it is considered that they were used as part of the basis for the classification of the patients.

Symptoms

The order of frequency with which symptoms were mentioned by the individual patients is given

TABLE II  
SYMPTOMS

	Number of patients complaining of various symptoms*		
	Glomerular Nephritis	Essential Hypertension	Total
Edema	9	27	36
Headache	7	25	32
Blurred vision	5	17	22
Nocturia	4	10	14
Dyspnea	3	9	12
Dizziness	0	12	12
Fatigue	4	3	7
Palpitation	2	4	6

\* Other symptoms included backache, epistaxis, vomiting, and epigastric pain.

in Table II. Interest with regard to these findings centers around the three symptoms most frequently noted, namely: edema, headache and blurred vision. These seem to constitute a triad, which when mentioned by the pregnant patient, should serve as a warning signal to the physician.

Physical Findings

The average blood pressure at admission and discharge, and the number and per cent of patients presenting an enlarged heart and pathologic changes in the eye grounds are shown in Table III. It will be noted that the average systolic blood pressure was above 200 millimeters of mercury in both groups at admission and that it was still markedly elevated at the time of discharge. Actu-

TABLE III  
PHYSICAL FINDINGS

	Average blood pressures		Patients showing enlarged heart		Patients showing pathologic changes in eye grounds	
	admission	discharge	number	per cent	number	per cent
Glomerular Nephritis	223 143	154 98	10	67	12	80
Essential Hypertension	217 135	164 107	21	70	21	70

ally, only three of the patients in the first group and six of the second group had a systolic blood pressure below 200 millimeters of mercury during the first few days of hospitalization. Pressures of 200 millimeters of mercury are unusually high at any time for patients subsequently shown to have had an uncomplicated toxemia of pregnancy with no permanent renal damage. Hence, it is felt that such a systolic blood pressure constitutes an important diagnostic sign of permanent renal damage in the pregnant woman.

It will be seen from Table IV that the overwhelming majority of these patients presented some degree of albuminuria when they were first observed.

TABLE IV  
URINARY FINDINGS

	Patients Showing					
	Albuminuria		Hematuria		Cylindruria	
	number	per cent	number	per cent	number	per cent
Glomerular Nephritis	14	93	9	60	11	73
Essential Hypertension	29	97	11	37	19	63

The blood chemistry, though estimated at least once in every patient, revealed nothing abnormal except in the occasional patient in whom uremia

became manifested. In general, there was an elevation of uric acid values, but of such slight degree as to be scarcely significant and surely of no diagnostic importance. Urea nitrogen and creatinine values remained in the normal range.

Similarly, the blood count presented no unusual features. In general, there was a slight anemia, but this finding loses significance when it is remembered that there is a definite hydremia with resulting lowering of hemoglobin percentage and erythrocyte count during normal pregnancy, and that edema accentuates the blood dilution.

Diagnosis

Some of the patients were known to have kidney disease when they appeared in the obstetric service for delivery care. Many of them were diagnosed during the first pregnancy observed in the clinic, but others were not detected until subsequent admissions or until the histories were reviewed for the purposes of the present study. Table V shows that 80 per cent of those patients

TABLE V  
ESTABLISHMENT OF DIAGNOSIS

	Recognized Prior to, or During Obstetrical Admission				Recognized After Obstetrical Admission	
	Number			Per cent	Subse- quent Admis- sion	At Review of History
	Before first Obstetric Admis- sion	During Preg- nancy	Imme- diately Post partum			
Glomerular Nephritis	3	3	6	80	3	0
Essential Hypertension	2	13	3	60	4	8

with primary renal disease and 60 per cent of those with essential hypertension were diagnosed prior to, or during, the first observed pregnancy. The ease of diagnosis of existing or pre-existing renal disease depends largely upon its severity. The more severe the kidney lesion, the earlier in pregnancy it becomes manifest and the easier its diagnosis. Those patients who present edema, headache, blurred vision, albuminuria and hypertension in early pregnancy almost surely have some form of renal disease, for it is well recognized that the true toxemias of pregnancy usually develop only in the last trimester.

If the pre-existing renal disease is mild, so that symptoms do not arise until late pregnancy, differential diagnosis is often impossible until the late puerperium, when the complicating factor of pregnancy has been removed. Also, there is considerable confusion introduced by the fact that severe toxemias themselves may give rise to definite chronic nephritis. Gibberd<sup>2</sup> found that fourteen per cent of 91 initially healthy women who

suffered from severe pregnancy toxemia ultimately developed chronic nephritis. Unquestionably, some of the women of this study, who were not discovered to be suffering from chronic nephritis until they were readmitted at a later date, fall into this category.

Follow-up

Questionnaires were sent to all patients not definitely known to be dead. Many of the patients were conversant with their own physical condition and returned a satisfactory report. We are deeply indebted to the patients' physicians for helping to trace some of the others, and for their generosity in giving time to conduct physical examinations and render reports. A few of the patients were returned to the clinic for study.

Forty-three of the forty-five women, or 96 per cent, were traced. Of this number, eight were dead. Table VI shows the various percentages, the number of years elapsed from the time diagnosis was made to the present time, or to death, the percentage of those patients reporting who now have albuminuria and the average blood pressures of those reporting. Obviously, two and one-

TABLE VI  
FOLLOW-UP

	Number of Patients in Series	Patients Traced		Patients Dead		Years Elapsed from Diagno- sis to Present Time or to Death	Albumi- nuria in the Patients Report- ing Per cent	Average Blood Pressure in the Patients Report- ing
		num- ber	per cent	num- ber	per cent			
Glomerular Nephritis	15	15	100	4	26.7	3.0	78	190 105
Essential Hyper- tension	30	28	93	4	13.3	2.3	45	185 112
Total . . . .	45	43	96	8	17.8	2.5	55	180 110

half years is too short a time to evaluate properly the effect of pregnancy on the course of so insidious and malignant a disease as chronic nephritis. However, the data available have been tabulated in Table VII and offer an interesting observation.

TABLE VII  
COMPARISON OF MORTALITY RATES

Average yearly death rate of whole female population of childbearing age of New York City. (Herrick and Tillman) . . . . .	0.4%
Average yearly death rate of women of child-bearing age suffering from chronic nephritis, not complicated by pregnancy. (Stander) . . .	less than 4.0%
Average yearly death rate of women of this study . . . . .	7.1%

The average yearly death rate of the whole female population of childbearing age of New York City is given by Herrick and Tillman<sup>3</sup> as four-tenths of one per cent. The average yearly death rate



of women of child-bearing age suffering from chronic nephritis, *not complicated by pregnancy*, and gleaned by Stander<sup>1</sup> from the best insurance company and medical statistics, is less than 4.0 per cent. The average yearly death rate of the women of the present study, obtained by dividing the total death rate, 17.8 per cent, by the average number of years, 2.5, is 7.1 per cent. Hence, *it will be seen that the death rate of the women of this study is practically twice that of women with chronic nephritis, uncomplicated by pregnancy and nearly eighteen times the normal death rate of the female population of child-bearing years of New York City.* In other words, these forty-five women who were suffering from chronic nephritis or essential hypertension have two times the death rate they would have had, had they not become pregnant! This seems rather a heavy penalty to pay for a pregnancy. Though this group of forty-five women is too small for statistical study, the evidence of a doubled death rate seems incontrovertible.

Stander<sup>1</sup> says, "Pregnancy itself, therefore, hastens death and increases its rate in women suffering from renal disease." Herrick and Tillman,<sup>3</sup> on the basis of a follow-up study of 594 toxemic women observed at the Sloane Hospital for Women over a period of 15 years, feel that, "In the case of established nephritis, whether latent or manifest, pregnancy activates and aggravates roughly in proportion to the size of the fetus." In other words, the longer pregnancy is allowed to continue after the diagnosis of pre-existing or existing renal disease is established, the more harm is done to already incompetent kidneys.

### *Treatment*

In the face of the facts elicited by the study of the present series of 45 women, and of the opinions quoted, it would seem that the treatment of chronic renal disease of either type complicated by pregnancy must attain two objectives; first, interruption of pregnancy as soon as diagnosis is made; and second, prevention of future pregnancies.

It is recognized that exceptional circumstances may arise which would cause one to deviate from the treatment just outlined. A primigravida with a mild chronic nephritis, diagnosed just before the period of viability of the child, might be carried along for a few weeks in the hope of obtaining a live baby. Obviously, if she is desperately in want of a baby she will never again have so good a chance for one, because nephritis becomes progressively worse, and a second pregnancy will aggravate the disease even more than the first. On the other hand, Williams<sup>5</sup> says that, "With the exception of syphilis, chronic nephritis is the most common cause of premature intrauterine

death," and Fishberg<sup>1</sup> claims that "abortion, premature labor, and intrauterine death of the fetus are all common." It is evident, therefore, that it is not justifiable to subject the pregnant woman with known renal disease to very many weeks of conservatism in the face of the possible chance of premature intrauterine death of the fetus.

It is felt, therefore, that chronic nephritis or essential hypertension complicated by pregnancy should be treated by interruption of the pregnancy, that is by therapeutic abortion, and by some form of permanent sterilization. The disease itself is a progressive one. Hence, if it is agreed that abortion is justified, it is essential to prevent future pregnancies, as the existing renal damage will never be repaired, and each succeeding pregnancy adds further insult. Contraception is not sufficient. In early pregnancy, dilatation and curettage with vaginal ligation of the tubes may be done at one sitting. Stander<sup>1</sup> favors hysterectomy, for both objectives of treatment are attained at once by this procedure. He feels also that the involuntary changes of the uterus, necessitating increased urinary excretion are harmful to diseased kidneys. In later pregnancy, abdominal hysterectomy with tubal sterilization will suffice.

### SUMMARY

Forty-five women, fifteen with primary renal disease and thirty with essential hypertension complicated by pregnancy, observed in the Department of Obstetrics of the University of Iowa, were studied in order to learn the important diagnostic features of the condition and to obtain some suggestions for therapy. Only two of the women were untraced on follow-up study, so that 96 per cent of the patients were studied by report of patient or her physician, or by return to the clinic.

One pregnant woman out of every 114, or 0.88 per cent, admitted to this clinic was found to have suffered previous kidney damage.

The major symptoms of which the patients complained at the time of admission, in order of frequency, were: edema, headache, blurred vision. All but nine of the patients had a systolic blood pressure greater than 200 millimeters of mercury during the first few days of hospital stay. It is felt that this is an important diagnostic point.

Eight of the patients, 17.8 per cent, are dead after an average period of observation for the whole group, of two and one-half years. This gives an average yearly death rate of 7.1 per cent, which is practically two times that of women with chronic nephritis uncomplicated by pregnancy, and nearly eighteen times the death rate of the female population of childbearing age.

Hence, it is felt that the treatment of chronic

nephritis or hypertension complicated by pregnancy is therapeutic abortion and permanent sterilization.

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### THE PRENATAL MANAGEMENT OF PREGNANCY WITH SPECIAL REFERENCE TO THE TOXEMIAS\*

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There can be little doubt but what the public and especially the expectant mothers are fearfully concerned about the high maternal mortality rate in the United States. I have casually read some thirty articles in well known lay magazines<sup>1</sup> and have come to the definite conclusion that thousands of young married women must have read these cold statistics with a dismal outlook toward what should be a natural event. The women of this country have learned from these articles that the causes for this high mortality rate are due to three main factors, namely, the large number of puerperal sepsis cases, the high incidence of operative and analgesic interference, and the urgent need for not only some, but proper prenatal care.

It is true that along with the great advances in other fields of medicine, obstetrics has advanced also, but as the public has been reading of only the fearful side, it is our duty to calm their fears and make childbirth to them a most optimistic and desired incident. In our own minds, however, we cannot help but be somewhat concerned over the figures, and although the above named factors are from lay magazines I do not feel that they should be overlooked. We as individuals should strive to minimize the mortality rate in our own practice.

I wish to discuss here certain routine measures in prenatal care especially those regarding the toxemias, notably the toxic vomiting in the early trimester and the eclamptic syndromes encountered later in pregnancy. These important prenatal steps may not prevent toxemias but it has been shown that they will markedly diminish the number of cases of eclampsia and toxic deaths.<sup>2</sup> I shall mention, too, procedures that should be followed when toxic states are threatening, and a few new thoughts under treatment, not, however, taking up the management of each toxemia in its entirety.

#### *First Visit and Instructions*

After the history and physical examination it is well to give the patient a printed list of instructions, including the time of prenatal visits, diet, exercise program, etc. Necessary medications are prescribed or given at this time. These things done, I believe it well to sit back in your chair and have a little informal chat with the patient, perhaps explaining a few of the printed instructions, such as the reasons for her prenatal visits, and the importance of notifying the doctor of any unusual stated symptoms. Above all, one should have a cheerful optimistic attitude toward her confinement, reassuring her always as to the final outcome. If there are any abnormalities well founded do not tell the patient, but speak to the husband, if necessary. A few well said words at this time may mean much to your patient's mental outlook on her confinement period.

#### *History*

A thorough medical history should be taken at the outset, and one should stress the importance of any past illnesses that may have affected the kidney, or any family tendency to Bright's disease. Naturally, the histories of past labors should be complete. The presence of albuminuria, high blood pressure, or other signs of toxemia should be determined. Many have the erroneous opinion that eclampsia is a disease affecting only primiparas; the converse happens enough times that I believe this statement should be forgotten. As a matter of fact the "severe type of eclampsia is about twice as dangerous in multiparas as in primigravidas."<sup>3</sup> Many patients do not consult physicians until the second, and sometimes the third, trimesters. If so, the history of the pregnancy thus far is important. For example, the incidence of the late toxemias is definitely increased in those patients presenting the so-called "physiologic" nausea and vomiting of the first trimester. Moreover, the late toxemia is in direct proportion to the severity of the early manifestations.<sup>4</sup>

#### *Physical Examination*

It has been suggested that cases of pre-eclamptic toxemias are more common among short, stocky, heavy-boned women who are inclined to be overweight.<sup>5</sup> Therefore, the physical examination should not only include the routine steps, but general impressions as well. An analysis of the patient's mental reaction and nervous state is obviously important. Men with years of experience know that instability may lead to fear which is "one of the most demoralizing emotions encountered."<sup>6</sup>

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### *Importance of Weight Taking*

The normal physiologic gain in weight during pregnancy is generally conceded to be about twenty-five pounds. In one thousand normal pregnancies Cummings<sup>7</sup> found a weight loss of two pounds in the first trimester, a gain of thirteen pounds in the second, and eleven pounds in the third. Harding and Van Wyck<sup>8</sup> consider gains up to five pounds a month as normal. Gains of five to eight pounds are regarded as suspicious and their patients are placed on a salt poor and restricted diet, and obviously watched closely. Gains of over eight pounds indicate a potential toxemia. These men regard an early gain in weight above the normal as a sign appearing before hyperpiesis or albuminuria. It must be remembered, too, that rapid gains in weight may be due to a constitutional dyscrasia.<sup>9</sup> Perhaps the most important single fact to remember is that "a sudden excessive gain in weight during the last trimester of pregnancy is now considered as a cardinal sign of pre-eclampsia."<sup>10</sup>

### *The Blood Pressure*

The taking of blood pressure readings is one of the well established prenatal measures, and rightly so, for many times the rise in blood pressure is the sole evidence, and usually the first sign of toxemia.<sup>11</sup> In the average patient a systolic pressure of 140 or more is a warning sign of a suspected pre-eclampsia; this is usually seen at about the twenty-sixth to the twenty-seventh week.<sup>12</sup> There is no evidence that a persistently high diastolic pressure is of value as a warning sign of a toxemia to follow, but Mussey and Randall<sup>13</sup> point out that normally the diastolic pressure rises five points for every ten systolic points, and that any greater ratio indicates exceptionally severe toxemia. An early rise in blood pressure followed by a more or less prolonged interval, during which the blood pressure is normal is a frequent warning sign of a future permanent hypertension and toxemia.<sup>14</sup> I wonder if a blood pressure reading right after the third stage of labor would not be a wise thing, and perhaps would prevent some postpartum eclampsias. I recently delivered a multipara, twenty-two years of age, with a normal past history, including her first labor eighteen months before. I had seen her three weeks before she delivered, and at that time her blood pressure and urine were negative. She had a normal multiparous labor at term, with no hemorrhage. When I left her, the temperature was normal, the uterus firm, and she felt good. Twelve hours after delivery she suddenly went blind, and within one-half hour had a violent convulsion, followed by a coma lasting eight hours. Her blood pressure

soon after the convulsion was 220/120. She was treated by intravenous glucose, intramuscular magnesium sulphate, and morphine. In a week's time the blood pressure was normal. If her blood pressure had been taken soon after labor this sudden convulsion might have been averted.

### *Albuminuria*

This laboratory finding usually makes its appearance after the elevation in blood pressure.<sup>15</sup> It must be remembered that all albuminurias are not signs of kidney disease, or destruction. In a series of sixty-seven cases diagnosed as albuminuria of pregnancy, one-half proved to be genitourinary infections.<sup>16</sup> The length of time albuminuria is present during pregnancy may tell us something as to the future prognosis, or furnish contributory indications for the interruption of the pregnancy, because 70 per cent of women who pass albumin for three weeks or more before delivery show albuminuria in subsequent labors.<sup>17</sup> "It has been pointed out that the continued passage of even small amounts of albumin is detrimental to the kidneys, and consideration for the mother's future health may fairly influence any decision for or against induction. The risk to the mother of induction is not great, and a fetus, say of thirty-six weeks, stands a better chance after premature birth than it does in the uterus of a toxæmic mother."<sup>18</sup>

### *Examination of the Fundus of the Eye*

Ophthalmoscopic examination of the ocular fundus should be included in the general examination, and at each prenatal visit. This usually can be done without a mydriatic. (Euphthalmin hydrochloride, 5 per cent if necessary.) There is always a possibility that at the first examination some change in the fundus may give some clue to previous vascular or kidney disorders. There have been numerous arguments for and against this eye examination. Burch believes that only well established toxic cases will show eye signs, and that little is learned of approaching toxic states by this examination. However, Bergmann<sup>19</sup> believes that in mild toxemias, such as vomiting, the earliest sign of the severe form may be a halo of cloudiness about the disc due to edema. He also states that amaurosis may be the first sign of serious renal disease, or the first sign of impending eclamptic disaster. Tillman<sup>20</sup> has recently reported two fatal cases of hyperemesis gravidarum in which hemorrhages were found in the retinas. He believes that a fundic examination should be done on all patients with vomiting of pregnancy. He considers this sign a serious prognostic omen, and if the patient is in condition for it, a therapeutic abortion should be done.

*Nausea and Vomiting of Pregnancy*

Watson<sup>21</sup> believes that the parturient woman should be given a regime to follow at her first visit even if no nausea is present. In this way she can immediately begin treatment at the earliest sign of nausea, thus preventing in many instances the severe type of vomiting. Briefly, the treatment consists of frequent small feedings throughout the day and a high carbohydrate low fat diet. The rapid growth of the ovum in early pregnancy causes a deprivation of the glycogen in the mother, and therefore the high carbohydrate diet.

As stated previously, I am not giving any complete plan of treatment here, except to mention the use of ultra-violet ray therapy in the mild types; this, and the correction of any local pelvic lesion,<sup>22</sup> such as cervicitis, many times will furnish the proper psychic element for cure. Kemp<sup>23</sup> has been treating the mild early nausea and vomiting with adrenal cortex extract. The treatment recommended in his communication is "based on the opinion that the nausea and vomiting of the first trimester is due to the presence of toxic metabolites resulting from a temporary relative insufficiency of secretion from the vital adrenal cortex." The therapy has been given a thorough trial by the author and some of his associates in Vancouver and the results have been almost entirely favorable in ambulatory patients. The theories back of the treatment are interesting and are detailed in his paper. He uses a potent cortico-adrenal extract given either orally or subcutaneously, three grains three times a day or six grains three times a day in more severe cases. Vomiting usually ceases within three days. In the severe forms most writers are agreed that hospitalization, dextrose, fluids, and sedatives are indispensable.

*Pre-eclampsia and Eclampsia*

Lentine<sup>24</sup> has been treating a number of cases of eclampsia by fluid limitation and dehydration. The dehydration measures are magnesium sulphate (saturated solution and two cubic centimeter ampules of 50 per cent) and intravenous glucose (50 cubic centimeters of 50 per cent). The diet is a low protein salt free one with small feedings at three hour intervals. All of his patients are placed in quiet darkened rooms. Fluid intake for the first twenty-four hours is restricted to a minimum, allowing only enough to allay thirst. During this period the urinary output is measured and charted, since all subsequent fluid intake is based upon the output of the preceding day. As far as is practical the level of the fluid intake is kept three to five ounces below the output. His treatment depends upon individual response and the degree of toxemia according to his groupings.

Generally the more severe the toxemia, the more often glucose and magnesium sulphate are given until in the severe form glucose is given every four hours and magnesium sulphate every six hours (intramuscularly), as well as one ounce doses orally. Daly and Armstrong<sup>25</sup> reported fifty cases of toxemias of pregnancy in which the albumin disappeared or was markedly diminished with alkali and calcium therapy. Most of the mild cases of albuminuria were successfully treated by the sole administration of the alkaline compound. By giving both alkali and calcium ampules daily in the more severe cases, not only was the albumin reduced, but the blood pressure fell, the edema disappeared, the urinary output increased, and a marked improvement was shown in other symptoms commonly associated with toxemia.

SUMMARY

It is my belief that the public has been somewhat aroused about the high maternal mortality rate in the United States. One thing that can be done to help prevent this mortality rate, is proper prenatal care. This I have discussed with special reference to the toxemias under paragraphs headed:

- 1. First Visit and Instructions.
- 2. History.
- 3. Physical Examination.
- 4. Importance of Weight Taking.
- 5. Blood Pressure.
- 6. Albuminuria.
- 7. Examination of the Fundus of the Eye.

I have added a few new points of interest in the treatment of the nausea and vomiting of pregnancy, and of the eclamptic syndrome.

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## PREMATURE SEPARATION OF THE PLACENTA\*

WITH CASE REPORT

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Premature separation of the placenta has been known and recognized since the Hippocratic era, although it was not until 1775 that it was clearly distinguished from placenta previa by Rigby. Since then, the incidence has steadily increased as we have become more observant and exact in our diagnoses.

There are several terms for premature separation. Accidental hemorrhage was the first name given to it, but this is misleading, as it suggests trauma, which is not always present, and is easily confused with the hemorrhage of placenta previa. Later terms applied are abruptio placentae; ablatio placentae; and uteroplacental apoplexy; the latter being really a severe and serious form of premature separation itself. Abruptio placentae is probably the most descriptive, being derived from the two Latin words—*ab* and *rumpere*, meaning "to break away from."

The frequency of abruptio placentae is surprising. Statistics vary from one in ninety cases, to one in over one thousand cases. The discrepancy is caused by the inclusion or exclusion of the very mild cases, many of which are not seen in the hospital, where, of necessity, most of our available data originate. Partial separation is a common complication of pregnancy, and is not always diagnosed; complete separation, while not so common, is much more severe and causes us grave concern. The condition is more common in the white race, although there is only a slight difference, probably because we see a greater number of white patients in the hospitals. It is most frequent in the active period of reproduc-

tion, and after the period of viability, principally in the last trimester. It is not uncommon in primipara, but is found much more frequently in multipara; and some authorities state that if it does not occur with the first pregnancy, it is unlikely to occur until several pregnancies have passed. Whether these statistics prove anything or are of any help in the actual diagnosis is doubtful; we can only say it can occur in any pregnancy and we must be on the watch for it.

The etiology is variable and indefinite, although there is a universal trend toward the toxemias of pregnancy, especially the nephritic type. Minor causes are numerous and include disease of the endometrium; intrapartum efforts at delivery; such as rupture of the membranes in a polyhydramnios, delivery of the first of a multiple pregnancy, and internal version; and trauma. The latter is most often incidental rather than causal, but a few cases are definitely of the traumatic class. This seems to be one ailment of the human body that we seldom find caused by that universal etiologic agent, lues; but far be it from any of us to say that it could not happen. I am of the opinion that we would find nephritic toxemia even more frequently if we had occasion to do urinalyses before delivery. However, as is the case with the patient reported below, so often no medical attention is sought until labor begins. As a result, no urine is obtained until the patient is convalescing, and then it is found negative.

The pathology is the one phase of this disease upon which most authorities agree. The toxin, whatever it is, produces degenerative changes in the blood vessels of the spongiosa. When these changes have sufficiently weakened the vessel wall, rupture occurs, initiating hemorrhage. Depending upon the area involved, the bleeding may be slight or severe; external if the edge of the placenta is separated, or if the blood ruptures through the membranes, and internal if these conditions are not present. If the bleeding is slight, the course of labor is not materially changed; if great, the pressure of the contained blood separates the placenta further and results in a serious clinical picture. When the inner pressure becomes excessive, the uterus increases in size, its circulation is interfered with, and it resembles a twisted ovarian cyst, with a shiny, purplish surface. Microscopically, the muscle fibers are separated by edema and hemorrhage with resultant degeneration of the musculature. It is this extreme pathology that is typical of the so-called Couvelaire uterus, or clinical uteroplacental apoplexy. The placenta is covered by adherent blood clots over the area of detachment, with flattening of the surface.

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The symptoms, or more appropriately, the signs of premature separation of the placenta vary with the degree of separation. The typical story is one of a sudden onset of abdominal pain, with sooner or later, vaginal bleeding. The patient will usually connect the onset with some trauma, either emotional or physical, but as I stated before, we have learned to consider most of these incidental, rather than causal. In partial separation, when the onset is near the end of labor, the pains become harder and the intervals shorter; in complete separation, the onset is usually before labor and the pain is severe when the uterus becomes sufficiently distended to stretch the peritoneum. There are few symptoms other than these of pain, and perhaps bleeding; the findings are of far more importance in the diagnosis. In a mild case, occurring after the onset of labor, there may be no change at all, except external bleeding or an increase in tenderness and rigidity of the uterus. In a severe case, the uterus becomes very rigid and tender; there is likely to be a tonic contraction, with no interval of relaxation allowing abdominal examination; and there may be an irregularity on one side or another, corresponding to the placental site. There is cessation of fetal movements and an absence of fetal heart tones, following a short period of very active movement and irregular heart tones—evidences of fetal asphyxia. The uterus may be larger than indicated by the length of the pregnancy, and the increase in size may be evident if the patient is watched for any length of time; especially if the hemorrhage is concealed rather than external. King says that if there is vaginal bleeding, the uterine wall is probably healthy; if there is no vaginal bleeding, he suspects the uterine wall of being infiltrated. One of the most evident and important signs is hemorrhage. We know the two common causes of external hemorrhage in pregnancy are premature separation of the placenta and placenta previa; the former being the most common, and differentiation between the two not difficult when a careful vaginal examination is made. Therefore, in any case of bleeding, where placenta previa has been ruled out, treatment for premature separation should be instituted at once. As bleeding continues, evidences of shock develop, and many authorities stress the fact that the shock seen in premature separation is out of all proportion to the amount of blood lost. In the most severe type, uteroplacental apoplexy, we find a tender, board-like uterus, the contractions not of the type to dilate the cervix. Clinically, uteroplacental apoplexy can only be suspected; the diagnosis becomes a certainty only at operation or

autopsy. In any case, signs of toxemia may aid the diagnosis.

There are few disturbances of pregnancy similar enough to cause difficulty in diagnosis. Placenta previa presents really the only confusing picture, and careful vaginal examination settles that. Moreover, unless the patient with a placenta previa is in labor, there is no pain, the uterus is soft, the fetus viable; and constitutional symptoms are proportional to the loss of blood. Hemorrhage is the most characteristic symptom of both, and in some cases, may be the only one. The blood from a premature separation is said to be darker, but this can only be a relative factor. Very rarely, in the extreme picture of uteroplacental apoplexy, we may have to consider ruptured ectopic pregnancy, intra-abdominal injury, or a ruptured appendiceal abscess associated with pregnancy. If the separation occurs before the seventh month, DeLee says the signs and symptoms are indistinguishable from those of a miscarriage. If a ruptured uterus should enter into the differential diagnosis, as it rarely does, we find the uterus in such a condition contracted and empty, with the fetus free in the abdominal cavity nearby. Labor has ceased, and the rent in the uterine cavity can be felt on palpation; furthermore, the presenting part recedes from the birth canal.

The one common complication is anuria, whether from the toxemia or the dehydration from blood loss is a moot question. Renal function, except in the most severe cases, returns as the body fluids are replenished. Postpartum hemorrhage always impends following a premature separation; either because of damaged uterine musculature, or a loss of tone resulting from the generally lowered body vitality accompanying the anemia. This hemorrhage is doubly dangerous because the patient is so nearly bloodless; even the loss of an additional small amount may be fatal.

To the general practitioner especially, although it is vital to all, the treatment of premature separation of the placenta is the most important phase of the disease. There are a few conditions in medicine, which, if left alone, will correct themselves. Unfortunately, that is not the case here; we lose a great majority of the babies as it is, and without the most careful supervision, we are constantly in danger of also losing the mother. There can be no set rules laid down to cover these cases; the treatment in any given case depends entirely upon the condition of the patient, and the stage of labor. The mild, or partial cases, occurring in the progress of labor, can usually be allowed to progress to a spontaneous delivery, if we keep in mind that at any moment, with increased hemorrhage, a more



radical procedure might become necessary. I believe conservatism should be practiced in all cases possible, although there are many authorities who advise radical treatment early; arguing that the condition represents a potential catastrophe which should be averted at once. I am inclined to agree with Polak when he stated, "Few cases require radical interference, but all need intelligent supervision." The baby is, in the majority of cases, dead from asphyxia, and our concern, therefore, lies with the mother.

The first step is to institute treatment for the shock, namely rest and quiet, with fluids by oral, subcutaneous, and intravenous routes. Hemoglobin and red counts are accurate means of checking the degree of anemia and donors for transfusion should be obtained and kept readily available. When these steps have been taken, the uterus should be emptied by the quickest and safest means possible. Again, we must be guided by the individual case; none can be generalized. If dilatation has started and it is possible to rupture the membranes, allowing the presenting part to act as a plug to stop the hemorrhage until dilatation is complete, that is the method of preference. An abdominal binder applied to increase intrauterine pressure may also help to prevent further hemorrhage. A low forceps or version operation may be advisable to shorten the second stage, but we must remember that any patient who has hemorrhaged is very liable to infection. If dilatation has not begun, we must decide between induction by bag or radical intervention. Again, patients who have lost blood rapidly and recently, are not good surgical risks, and if it is likely that a cesarean section may have to be done eventually, it is far better to do it at once while the patient's condition is relatively fair. However, if possible, I believe we should carry them through conservatively, effecting delivery from below. King recommends packing the vagina with cotton to induce labor; he prefers that method to a bag induction. Small doses of pituitrin (three to five minims every half hour) also aid the onset of pains. Needless to say, if the baby still lives, a cesarean section would be indicated, for by conservative treatment, the child stands a great chance of asphyxia. If a uteroplacental apoplexy is suspected, it is probably wise to open the abdomen, remove the baby, and observe the uterus directly. If it contracts well after pituitrin, the abdomen may be closed; if not, as is so often the case when the musculature is infiltrated, a hysterectomy can be done at once, to prevent further serious trouble. In any mode of delivery, the placenta, because of the premature separation, usually is delivered immediately and without difficulty.

After-care of these patients consists mainly of keeping the uterus well contracted, and is best accomplished by pituitrin and repeated doses of ergot to prevent postpartum hemorrhage, and of overcoming the anemia. It is seldom necessary to pack the uterus; to do so, invites infection and prevents contraction, but it must be done without hesitation, if deemed necessary. If a blood donor is available and there are no contraindications, a more rapid recovery follows transfusion. Otherwise, good nourishing food, in a sufficient amount, augmented by iron in some form, is the best way to raise the blood count. Fresh Bland's is effective if we are sure it is fresh. Personally, I like iron and ammonium citrate, 0.3 gram, three or four times daily.

The prognosis in these cases is not good. Fetal mortality is high in all series, ranging from 57 to 83.5 per cent. Because of the frequency of prematurity and of asphyxia in the full term infants, their welfare need not concern us so much when treatment is debated. The average maternal mortality is 22.6 per cent, which is appalling when we consider the frequency of premature separation. I feel that early diagnosis, followed by constant and careful supervision, preferably in a hospital where one can be immediately ready to deal with any emergency, is the vital point in lessening this mortality. The chance of having a normal pregnancy and labor after an episode of this nature is good; while some cases have premature separation more than once, it is not the rule, but rather the exception. If section has been done for a premature separation, it should be done in the next pregnancy to prevent rupture of the uterus.

The following case is typical of those greeting the country practitioner. It is no more typical in diagnosis than any other case, but treatment had to be adapted to available material, in a farm home twelve miles from the office, and farther from the nearest hospital. Furthermore, the family persistently refused hospitalization, stating that if the patient had to die, they would much rather have her die at home.

The patient was a white American female, thirty-one years of age, whose last menstrual period was in October, 1933. Her pregnancy had been normal except for an occasional headache, some frequency of urination, backache, and shortness of breath. There had been no swelling of the ankles, no visual disturbance, and the appetite was consistently good. Fetal movements were first felt at four and one-half months and continued active until the evening before medical attention was requested. An indefinite, irregular pain in the right side began at 4:00 a. m., followed by nausea, and one attack of vomiting. At 6:00 a. m. bleed-

ing started suddenly and continued profusely. Twelve hours later, I first saw the patient. She was pale, dyspneic, her body was cold, and she was perspiring freely. Her mouth was dry and she was crying for water. Pulse was 120 and very feeble. The uterus was about the size of a seven months' pregnancy, with regular contractions every three or four minutes, lasting sixty seconds. Bleeding from the vagina was active. Fetus was in the left occipito-anterior position, the cervix thin, soft, dilated three fingers, membranes intact. Feeling that dilatation would progress rapidly, I ruptured the membranes, gave the patient morphine  $\frac{1}{4}$  grain hypodermically, and fed her ice continually by mouth. About one hour later, she spontaneously gave birth to a stillborn fetus. She was immediately given one cubic centimeter of pituitrin, and one-half hour later, one cubic centimeter of ergot intramuscularly, each repeated once in another hour. In spite of this medication, the uterus remained soft and slow bleeding continued. There was no cervical or perineal laceration. Massage of the fundus was of no avail; but by grasping the fundus and maintaining a firm, steady pressure, bleeding finally subsided.

The placenta was covered by an adherent blood clot, except for an area of about two centimeters. The postpartum course was stormy, with a temperature of 102 degrees for several days, and a brownish discharge for two weeks. The anemia caused the most difficulty, but the family refused hospitalization or transfusion, so symptomatic treatment and bed rest had to suffice. When last seen the patient was well and color was good. The Wassermann test was negative; and postpartum urine negative. Physical examination was entirely negative; the blood pressure normal. She gave the following history of six pregnancies:

First: Full term, normal delivery; boy now ten years of age and well.

Second: Full term, delivery by version; pregnancy accompanied by many "sick headaches."

Third: Two months' miscarriage; considerable hemorrhage until complete uterine contents passed.

Fourth: Three months' miscarriage. She had been receiving treatment for frequency, and her doctor told her she had too much albumin. The miscarriage came after two weeks' illness with a cold and backache.

Fifth: Seven months' stillbirth. Onset of pains then with vomiting but no hemorrhage. In labor twenty-four to thirty-six hours. Felt well during entire seven months.

Sixth: Present illness.

It has been suggested to me that the repeated miscarriages and two premature labors might have been caused by some endocrine imbalance, to prove which would require an expensive hospital stay, prohibitive in this case. Whether, during this pregnancy, the patient was of the group of toxemias is difficult to say, since no ante partum examination was possible. All of the symptoms which she had were admitted only after direct questioning, and we know that all of these are sometimes found in a normal pregnancy. Unfortunately, no medical attention was sought at the time a urinalysis would have been valuable. There was no trauma connected with the onset. The baby was small, fluid was not excessive. It must of necessity pass as one of those cases with an unknown etiology, although I feel the cause may have been evident if prenatal examination had been done.

#### CONCLUSIONS

1. The etiology of premature separation of the normally implanted placenta is indefinite, but the toxemia theory is rapidly gaining in favor.

2. Important symptoms are pain and bleeding, either preceding or during labor.

3. Diagnosis is usually not difficult, if placenta previa is ruled out by vaginal examination.

4. Treatment is all-important and any case of vaginal bleeding during pregnancy should be hospitalized. Conservative treatment is preferable; but one should not hesitate to interfere radically if such a procedure is indicated. The treatment of the shock is of primary importance to help the patient withstand any obstetric procedure.

5. The prognosis in any case for the baby is poor, and little better for the mother.

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TUBERCULOUS TENOSYNOVITIS  
OF THE WRIST\*†

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It is almost one hundred years ago that Dupuytren remarked on the existence of rice bodies in the tendon sheath. Although we have a description of synovial cysts of hand and wrist going back to Gosselin, 1852, their tuberculous nature was not suspected until 1876; and, some years later, Baumgartner established the presence of tubercles in the tendon sheath.

Tuberculosis of the sheath of the flexor apparatus of the wrist and fingers is important both as a distinct pathologic entity as well as a complication to osseous tuberculosis of the wrist in general; the latter may be primary synovial or primary osseous, but in a great number of cases it develops as an extension form from tuberculous synovitis of the flexor tendons. In the last fifteen years we have observed twenty-four cases of tuberculosis of the wrist, of which not less than twelve were associated with synovial tuberculosis of the tendon sheath; again, of sixteen cases of tendon sheath tuberculosis, only four remained purely synovial and did not extend into the wrist joint while in twelve cases tuberculosis of the wrist either followed or developed concomitantly.

## PATHOLOGIC ANATOMY

On incision of the tumor, a viscid yellow fluid usually escapes, accompanied by an innumerable number of small rice bodies. These are white or opal in color, and vary in size from a millet grain to a small pea, some comparable to cooked rice, while others are of the shape of melon seeds. Nicaise and others distinguish two types of rice bodies: one that has a tendency to become stratified, formed by concentric layers; and another in which the body has a reticulated structure with an amorphous ground substance containing cavities filled with leukocytes, epithelioid cells, etc. The origin of these rice bodies has been variably disputed. While Velpeau and Koenig considered them as true fibrin, Virchow believed that they are the product of an active proliferation of the synovial wall. Indeed, one may see certain of the bodies still attached to the fibrous zone of the sac by a pedicle. It seems, therefore, most probable that under the influence of tuberculous toxin the innermost portion of the sac undergoes an irregular fibrin degeneration which produces fringes and tabs often still seen in contact with the wall of the sac but already showing necrosis in the center. The synovial sac appears injected,

red or pink, according to the degree of inflammation, and is usually of considerable thickness, varying from three to eight millimeters.

It contains three layers, an external fibrous layer; a middle layer which is constituted by a fibrillary connective tissue containing blood vessels and often showing signs of peri-arthritis or endarteritis; and, finally, the internal layer consisting of the embryonal cellular element and of the epithelial lining. In all three of these layers tubercles may be found scattered about. They can be easily recognized by the accumulation of epithelioid cells and a number of giant cells. The tubercles often show phenomena of coagulation necrosis. By confluence, a tendosynovial tuberculoma develops which walls itself up while the center becomes necrotic, essentially paralleling the tuberculosis of the skeletal system.

## CLINICAL PATHOLOGY

1. Onset: Although the onset as a rule is insidious and gradual and a definite time of the beginning can hardly be ascertained, there are not a few cases in which a definite trauma is given. In our own series there were three cases; one of isolated tenosynovitis and two associated with tuberculosis of the wrist. In the former the condition developed one month after a fall on the hand; in the other two, after a dislocation of the wrist, and after a sprain.

2. Swelling: The tumor presents a firm consistency, rather elastic, while the mass can be somewhat displaced laterally but not mobilized in the longitudinal direction of the sheath. However, the muscular contraction along the forearm may sometimes produce a longitudinal movement of the tumor. Later, the consistency becomes much more soft or pseudo-fluctuating. If left to itself, the tumor gradually increases and the skin which at first is normal becomes thinned out, discolored and finally ulcerates, the sinus emitting seropurulent fluid and occasionally rice bodies. At this time the tendons are usually immobilized in their sheaths, assuming the position of maximum relaxation, and a clawhand develops. In general, the tumor is located on the volar surface, but its extension is peculiar in some cases. In one instance the swelling began in the middle finger and progressed toward the wrist, involving the entire carpus within six months. In another case the swelling began over the index finger of the right hand and gradually spread to the thumb and to the other fingers. In a third case there was first a small reddish area of the fusiform type at the volar surface of the proximal part of the middle finger. This swelling spread a short distance to the palm. Swelling appeared as an early symptom in six out of fourteen cases.

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3. Pain: On the whole, pain phenomena are exceptional at the beginning of the affection but become frequent in its further course. It was an early symptom in only two cases. Most of the time if there is a well-localized painful point it indicates an osseous lesion as the point of departure. In one case the patient complained for two years of pain in the wrist after lifting. In another case the pain started first in the wrist and four months later the swelling appeared.

4. Limitation of motion: This is usually a later effect. The clawhand deformation due to the fixation of the tendons and their sheaths has already been referred to. It is remarkable how slowly sometimes the restriction of motion appears. In many cases there is a swelling or a tumor present for a number of years with no more than a slight impediment in the use of the fingers. Of the fourteen cases, restriction of motion was a prominent symptom in only four. In one case limitation of motion appeared very gradually with the onset of swelling at the volar side of the wrist, and was really caused more by pain than by actual adhesions. In another case the patient complained of stiffness, together with a swelling of the palmar surface of the middle finger, the swelling gradually spreading to the index and the fourth and fifth fingers until all fingers were included. When examined three years before he complained merely of some stiffness in the use of the fingers, although there was considerable pain and the swelling had already assumed substantial dimensions.

5. Diagnosis: From the clinical evidence, including the x-ray pictures alone, the diagnosis was made in three cases; a positive guinea pig reaction in one case; histologic examination established the diagnosis in two cases; histologic examination plus a positive guinea pig test were found in six cases; and in one case the histologic findings were positive but the guinea pig test was negative.

6. Differential diagnosis: From the clinical point of view it is of utmost importance to be able to distinguish between tendon sheath involvement, and involvement of the wrist itself at the earliest possible period of examination. In tuberculosis of the tendon sheaths the swelling extends distinctly along the run of the tendon sheath, that is, in the longitudinal axis of the limb. While the motion is somewhat restricted, it is less so than would appear from the swelling; the principal restriction is passive extension of the fingers, especially if the peripheral portions of the tendon sheaths are involved. Pain is rather insignificant; the creases at the joint levels are not painful, which is very much in contrast with the acute or pyogenic involvement of the tendon sheaths.

It is particularly the extent and the location of the swelling which differentiate it from tuberculosis of the wrist proper. While in the latter the primary swelling appears dorsally and is cylindric, so that the wrist appears thickened in the antero-posterior direction, and while passive movements are generally limited by pain, in tuberculosis of the tendon sheaths the swelling follows the volar surface along the course of the tendon sheaths and is rather painless, and limitation of motion is more of the passive kind. Only as the infiltration of the sheaths increases, the flexion contracture of the fingers becomes more marked, and the motion more and more restricted.

Another condition to be differentiated from tuberculous tenosynovitis is the truly synovial cyst or the ganglion, arising from the joint. This is usually circumscribed, more often on the dorsal surface, is usually painless and shows little tendency to restrict motion, and the swelling does not move with the tendon.

#### THE TREATMENT

1. Conservative: In the treatment of infants in whom tuberculous lesions often yield to simple remedies, or in an individual who already presents tuberculous lesions or pulmonary tuberculosis, it is probably best to combine a compression treatment with injections of modifying fluid. Every two weeks for a period of several months one injects several cubic centimeters of iodoform glycerine or, according to Guinard, mentholated camphor. After the injection the member is enveloped in a cotton bandage with a considerable amount of compression and this bandage remains for two weeks. This is a long-continued and rather painful treatment of rather uncertain outcome, sometimes yielding result, particularly in infants. Often, however, only long remissions are obtained, an arrest, which might, however, last for several years. We carried out the conservative treatment in three cases.

2. Operative: In the adult as a rule the treatment of choice is the complete extirpation of the diseased sheath. This is best done under application of an Esmarch bandage, the sheath being incised from one end to the other, and extirpated as completely as possible. This is usually a very long-drawn-out and laborious procedure. It is an excellent operation if the removal is absolutely complete. Otherwise, the obtained results are anything but satisfactory and recurrences are almost sure to occur. In one case it was necessary to perform this operation in two steps. In one case, observed for one year, the result was good. This patient did well clinically; however, the x-ray pictures showed a continuous extension



to the carpus, and the operation was advised nevertheless. In the other two cases the operation was not undertaken because of the presence of a pulmonary tuberculosis and there was insufficient time of observation to give a statement on the end result.

Operative cases may be divided into the following two groups:

1. One group in which there was already an involvement of the carpus, in which a total resection of the carpus alone or in combination with removal of the sheath was carried out. Seven of these cases showed good results under an observation period ranging from eight months to twelve years. These cases must be judged rather as tuberculosis of the wrist than as tendon sheath tuberculosis.

2. The second group includes those cases in which there was no concomitant involvement of the carpus. Two of these, treated by radical resection of the tendon sheaths, gave good results, but the time of observation was comparatively short. A tuberculous kidney was removed from one patient, and while the time which has elapsed is too short, the improvement is striking and the outlook is favorable. Still more striking is the result in another case in which the removal of the tendon sheaths in two steps caused marked improvement; and the patient regained the use of the fingers to a considerable extent. A third case had a radical resection of the tendon sheaths; remained entirely well for six years, at which time further observations show that an extension of the process into the carpus occurred. This was subsequently excised. We had one case in which an aspiration of the tendon sheath was carried out but no further treatment was given; the result was unsatisfactory.

#### CONCLUSIONS

1. Tuberculosis of the tendon sheaths of the fingers is a progressive disease which in a large percentage of cases ultimately concludes with involvement of the carpus.

2. Early diagnosis of the condition is essential in the interest of timely intervention.

3. With the exception of rare cases in children or of cases of multiple tuberculosis or pulmonary involvement, the treatment of this condition is radical and consists in complete removal of the synovial sac.

4. In early tendon sheath tuberculosis the outlook is not unfavorable if the treatment is radical. However, incompleteness in the removal of the tendon sheaths is almost sure to lead to recurrences and to ultimate involvement of the skeletal system.

5. Very little can be expected in adults from aspiration of the tendon sheaths or injection with corroding or modifying fluids. Because of the tendency of recurrence and the possibility of a later involvement of the skeletal system, even after a number of years, it is necessary to submit the patient to a long period of observation.

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#### PERIPHERAL NERVE INJURIES

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There are less peripheral nerve injuries in a rural community than in large industrial centers, and yet the frequency of these injuries warrants a brief resumé of the salient diagnostic points and modes of treatment. The types of injury vary from mild contusion to complete division of the nerve. In a mild or moderate contusion, complete loss of function is seldom of long duration, and with early signs of recovery, it is safer to follow conservative methods than to resort to radical surgical procedures. In a complete division of the nerve, there is immediate and sudden loss of function with no signs of recovery. In this instance, delay is of no value and early approximation of the severed ends is the only manner in which recovery can be obtained. The various conditions in between these two extremes vary with each individual case and no hard and fast rule can be laid down.

Thus, when the physician is confronted with the problem of a nerve injury, it is obvious that a painstaking history is of extreme value in determining the future management of the case. The type of injury, position of the extremity, the objective and subjective loss of motion and sensation, associated injuries, and signs of recovery, must be discussed fully before examination is undertaken. The examination should be carried out after a careful explanation as to the necessity of full cooperation between patient and physician. The patient must understand the importance of responding to the various sensory tests, such as being touched with cotton, discriminating between sharp and dull, heat and cold, and appreciation of joint sense. The physician should fully appreciate the psychic element in these cases, particularly in reference to compensation cases, lest a malingerer lead him astray. As will be illustrated in the following tables, there are certain definite functions for peripheral nerves, and in spite of overlaps in sensations, anatomic distribution is constant. In addition, supplementary or "trick movements" carried out by unopposed groups of muscles aided by posture of the extremity can confuse the attending physician unless he is on guard.

## THE RADIAL NERVE

The radial nerve is most commonly injured in civil life because of its length and winding course around the humerus. Dislocation of the shoulder and fractures of the humerus may produce an immediate injury to this nerve. Callus formation, traumatic aneurysms, compression by bandage, splint or cast may produce an injury to the nerve. It may be overlooked and injured by the surgeon during operations upon the upper arm. One form of injury, which is not uncommon, is the so-called "Saturday night palsy," which occurs during a drunken sleep. This also may take place during prolonged operations under anesthesia. The main function of the radial nerve is extension of the upper extremity. When the nerve is paralyzed, extension of the thumb, proximal phalanges of the fingers, wrist and elbow, and abduction of the thumb on the plane of the palm cannot be performed. The patient cannot make a fist adequately, nor grasp objects in the hand, because complete flexion of the fingers is not possible. It is necessary to have the elbow elevated sufficiently to overcome the force of gravity. Supination of the forearm is also involved. "Trick movements" in this type of lesion usually occur in partial extension of the wrist, when the arm and wrist are supported. Subjective sensory disturbances are rare in injury to the radial nerve, although numbness, prickling and pain may occur. Usually pain is the result of injuries to adjacent tissues. Objective sensory loss may be overlooked because of the widespread overlap of nerve supply. When lost, it is over the dorsum of the thumb and dorsum of the ulnar side of the hand and forearm. Touch is most frequently involved and pain and temperature sensations will vary greatly.

## THE MEDIAN NERVE

Injuries to the median nerve are the result of direct trauma such as cuts, stabs, compression by a tourniquet, splint or cast. Dislocation of the ulna may injure the median nerve, and injections of drugs, such as arsphenamine, may produce partial or total paralysis of this nerve. The presence of cervical ribs with hypertrophy of the scalenus anticus muscle may cause injury to the median nerve. Partial paralysis is more common and this condition is often very painful. In complete paralysis the hand inclines to the ulnar side of the forearm, there is atrophy of the thenar eminence and the thumb is in the plane of the palm, producing the typical "ape hand." Pronation is defective and when the forearm is flexed, the patient supplements this motion by holding the elbow out. When the forearm is extended, the arm is rotated inward with a resulting passive pronation of the

hand. Paralysis of the flexor muscles of the fingers is manifested by an absence of flexion in the index finger and feeble flexion of the middle finger. Movement of the ring finger, which is supplied by the ulnar nerve, often affects the middle finger to a varying degree. The patient is unable to make a fist or clasp the hands together as in prayer, and opposition of the thumb and little finger is not possible. Supplementary muscle action is usually the result of ulnar nerve supply. Sensory loss is over the radial side of the palm, the palmar surface of the thumb, the index, middle and inner half of the palmar surface of the ring finger, and the dorsal surface of the distal phalanges of the index and middle fingers. Vasomotor symptoms are very frequent complications of median nerve injury. The skin of the palm is glossy, purplish, red or mottled red and white. Often the patient complains of exquisite pain in the palm and fingers. The skin is dry and occasionally keratotic. Trophic ulcers are seen most commonly on the index finger, usually the result of cigarette burns.

## THE ULNAR NERVE

The ulnar nerve is injured easily from pressure, particularly in an alcoholic debauch; also during the administration of a general anesthetic. Injuries and fractures around the elbow joint and subsequent callus formation produce injury to this nerve. Often, the symptoms of paralysis or anesthesia are not apparent until considerable time has elapsed after the initial trauma. This condition is then known as tardy ulnar palsy. Because of the superficial location of the nerve and its proximity to the bone, occupational palsy is not infrequent. This is found chiefly among watch and cigar makers, metal workers, telephone operators and tailors as a result of a tendency to lean upon the elbows. Pressure from a cervical rib can also produce an injury to the ulnar nerve. Paralysis of the ulnar nerve is manifested by an inability to flex the proximal or distal phalanges of the ring and little fingers; to abduct or adduct the fingers; to extend the second and distal phalanges of any of the fingers; to adduct the thumb and to abduct or oppose the little finger. The appearance of the hand in an ulnar nerve lesion is characterized by atrophy over the first dorsal interosseous space and to a lesser degree in the other spaces. Clawing of the hand is present in various degrees as a result of the unopposed action of the extensor communis digitorum. The hypothenar eminence shows marked atrophy and this is also noted at the edge of the thenar eminence. Supplementary movements seldom affect the motion of the little finger. The loss of sensation is limited to the little



finger, lateral half of the ring finger, the ulnar side of the hand and forearm. Surgical treatment of ulnar nerve lesions is the most satisfactory of the peripheral nerves in the upper extremity. This is particularly true in lesions around the elbow joint, where a simple transplant of nerve is rewarded with a return of function.

TABLE I  
Upper Extremity

Nerve	Motor	Sensory
Radial	Inability to extend thumb, proximal phalanges of the fingers, wrist and elbow. Inability to abduct thumb on plane of palm.	Lost over the dorsum of the thumb and dorsum of the radial side of the hand and forearm.
Median	Incomplete pronation of the forearm. Inability to flex distal phalanges of fingers except the fifth finger. Inability to clasp hands. Inability to oppose thumb and fifth finger.	Lost over the radial side of the palm, the palmar surface of the thumb, index, middle and medial half of the ring fingers. The dorsal surface of the distal phalanges of the index and middle fingers.
Ulnar	Inability to flex the proximal and distal phalanges of the ring and little fingers; to abduct or adduct the fingers; to extend the second and distal phalanges of any of the fingers; to adduct the thumb; to abduct or oppose the little finger.	Lost in little finger, ulnar half of ring finger and ulnar side of the hand and forearm.

#### THE SCIATIC NERVE

Injury to the sciatic nerve above the bifurcation into the peroneal and tibial nerves is not common. This nerve may be injured by gunshot and stab wounds or from fracture of the femur. Reduction of dislocation of the hip may produce injury to the sciatic nerve and this condition is also seen in infants as a result of birth injury. Jumping upon the extended foot or sudden extension of the lower extremity with flexion of the trunk can produce an injury to this nerve. The occupational type of trauma to the sciatic nerve is most common among saddlers and plasterers. Injury may occur during anesthesia or in surgical procedures carried out in the region of the nerve. As the nerve to the semitendinous and membranous muscles is given off high, complete loss of flexion of the leg is uncommon. Paralysis is manifested by a dangling leg, foot drop, and in walking a steppage-gait is noted. All of the muscles below the knee are paralyzed, and standing on either the heels or toes is impossible. The patient cannot run. In course of time, there is a shortening of ligaments producing a limitation of motion of the foot. When this has taken place, the patient walks as if he had a peg leg with relatively little disability. Owing to edema and infiltration of the tissues, atrophy is not as apparent. The patellar reflex is always present and the Achilles reflex is

always absent. The intrinsic muscles of the foot are of minor importance in comparison to those of the hand and, consequently, there are few supplementary movements. Objective sensation is lost or diminished over the foot, with the exception of the inner border of the arch and the internal malleolus. It is also lost over the outer side of the leg to the knee. Since ankylosis is a frequent occurrence, injury to the sole of the foot is common. Vasomotor and trophic disturbances are followed by ulcers. Edema of the leg and foot is common, and brawny infiltration of the calf is seen. Color changes are frequently observed and sweating is diminished except over the inner surface of the foot.

#### THE PERONEAL NERVE

This nerve may be injured in the usual manner and not infrequently paralysis results from pressure of the nerve against the head of the fibula. This is known as "crossed leg" paralysis, occurring after the patient has been seated for a considerable length of time with the legs crossed, as in a lengthy session of playing cards. Then, when the patient stands, there is a complete foot drop and inability to flex the foot dorsally. When the patient is examined for voluntary motion, it is necessary to immobilize the knee and to beware of twitchings of the aponeurosis of the leg. These, caused by contraction of the muscles of the thigh, may be mistaken for contractions of muscles supplied by the peroneal nerve. Thus, no active movement or dorsal flexion of the foot is possible. Extension or dorsal flexion of the proximal phalanges of the toes or abduction of the foot cannot be performed. A steppage-gait, walking with the knee raised high and the point of the foot dropped and adducted, is characteristic. Supplementary movements are the result of strong flexion of the toes inverting and slight dorsal flexion of the foot. Subjective sensory loss is very rare. Objective sensation is absent over the dorsal surface of the foot to the base of the toes, the outer and anterior surface of the leg.

#### THE TIBIAL NERVE

Isolated paralysis of the tibial nerve is uncommon and the usual causes are lacerations, stabs or gunshot wounds. When the tibial nerve is divided, plantar flexion and adduction of the foot is impossible. The tibialis anticus exerts such a pull that the foot is elevated and walking is painful and difficult. Hyperkeratosis and ulceration of the foot is frequent. The subjective sensation is of a painful nature, limited to the sole of the foot. Objective sensation is lost over the sole of the foot, except at the inner border, the lateral surface

of the heel, the plantar surface of the toes and at times over the distal phalanges.

TABLE II  
Lower Extremity

Nerve	Motor	Sensory
Sciatic	Inability to flex lower extremity, to elevate foot, to walk on heel or toes.	Lost over foot, outer and anterior portion of leg.
Peroneal	Inability to dorsal flex foot and abduct foot. Inability to extend toes.	Lost over dorsum of foot, the outer and anterior surface of leg.
Tibial	Inability to flex and adduct foot.	Lost over sole of foot, lateral surface of heel and plantar surface of the toes.

TREATMENT

The management of each case is guided by the type of injury, duration of symptoms and evidence of complete and incomplete nerve division. Frequently more than one nerve is involved, the most common type being a combined median-ulnar nerve paralysis. Providing the injury is one of contusion, because of no laceration and evidence of incomplete paralysis or sensory loss, it is wise to treat conservatively with massage, underwater therapy, supervised exercise and placing the extremity in optimum position.

It is a well known fact that new nerve tissue grows at a rate of one millimeter a day, or roughly one inch a month, thus, the patient must be warned lest he become discouraged and seek some unorthodox and speedy cure. When the evidence points to complete division of the nerve, early approximation of the fibers should be carried out. In this instance, meticulous care and flawless technic is of paramount importance, as a tendon sutured to a nerve, or the onset of infection will result in failure, humiliation and discouragement. Following accurate approximation of the severed nerve ends, the usual course of physiotherapy must be carried out under careful supervision.

TECHNIC IN USING TRICHLORACETIC ACID FOR THE REMOVAL OF MOLES UPON THE EYELIDS AND OTHER PARTS OF THE BODY

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Moles upon the eyelids, about the nose or on the face and neck are invariably unsightly. They may become irritated and have a tendency to grow larger, though only rarely do they become malignant. When these lesions appear upon the eyelids, on the nose or ear, patients are inclined to consult the eye, ear, nose and throat specialist regarding their removal. Eyeglasses and spectacles sometimes irritate these growths. The spe-

cialist, like his colleague in general practice, rarely has familiarized himself with the manner in which they may be successfully removed; therefore, his patients are usually advised that it is best to leave them alone.

A few suggestions are herein offered regarding the technic in successfully disposing of these epithelial blemishes. While moles do not often become malignant it is safer to have them removed. Their removal many times is also of decided cosmetic advantage. All of the trichloroacetic acid required for the successful removal of a mole should preferably be applied at the first sitting. A second treatment is rarely necessary if the number of applications in the initial attempt has been correctly estimated. All of the tissue of the lesion should be removed. If a second treatment is thought advisable a period of several weeks should elapse before it is given.

Trichloroacetic acid is a mild caustic and when applied to the skin appears to have the property of attacking only the loosely protected capillaries. Because of its mild escharotic effect it is much used in closing bleeding points upon the nasal septum. Its effect when applied to moles and other epithelial lesions is to dehydrate the tissues. The time required to saturate the growth down to the healthy skin depends upon whether the lesion is hard or soft. If the growth is small and also soft, one or two applications may be sufficient, but if it is hard, saturation will take place more slowly and the surface must be kept moistened with the solution every few moments until the acid ceases to be absorbed.

Caution is advised, however, in treating epithelial lesions on young women who have very tender skins and also those on children. Trichloroacetic acid is hygroscopic and is purchased in paraffin sealed ounce bottles. For convenience in use a half drachm should be transferred to a glass stoppered bottle. While these crystals will soon dissolve when exposed to the air, one drop of water will melt them sufficiently at once to moisten the point of the wooden applicator. A fairly well pointed pine stick makes an ideal instrument for applying the acid solution. When dipping the point of the instrument in the acid care should be taken to contact the side of the bottle when it is withdrawn so that any surplus fluid will be removed, thus obviating the annoyance of having some of the solution run from the mole over the healthy skin. Only enough of the acid to moisten the surface of the mole should be applied at a time. When the acid ceases to be absorbed the growth has been thoroughly impregnated and no more need be applied.

In a large firm mole the moist applications may



continue to be absorbed for thirty minutes or longer. The chemical action of trichloroacetic acid on epithelial abnormalities appears to consist essentially in its dehydrating effect. After the mole has been saturated with the liquid it begins to shrink in height and circumference and continues to do so for several hours. The firm crust that is formed serves as its own dressing; however, if the lesion is situated where it is likely to be rubbed by the clothing an adhesive pad should be applied. Small soft moles which require but one or two applications will drop off in six or seven days. Larger ones will take a longer time, even to three weeks.

The shrinking of the mole after the applications have been made causes it to draw slightly upon the surrounding skin, and a small ridge is formed around the area involved. This ridge, after the dehydrated mole has separated itself from the skin, causes the central area to appear at a lower level; but soon the surrounding ridge is absorbed and the remaining reddish brown surface is found to be level with the adjacent epithelium. If the removed mole was a large one the newly exposed skin will retain its color hue for several weeks and occasionally longer, but this always disappears eventually. If the mole is situated on the edge of the eyelid, a cocaine solution should be instilled in the eye and sterilized cotton held between the lid and the eyeball while the applications are being made. In this procedure skillful technic and patience will yield excellent results.

Nearly every beginner makes the mistake of getting too much of the acid solution on his applicator, of getting too much on the mole at each application, and of assuming that because the surface of the lesion has become white that enough solution has been applied. Moles seem to be like wood which takes in fluid slowly. When the lesion ceases to absorb the acid solution it is saturated. The treatment of these dermal blemishes is necessarily incidental in the physician's professional work. However, for thirty-four years the writer has paid considerable attention to the treatment of these small epithelial growths and at no time has he seen the skin injuriously affected where a mole had been removed with the remedy here recommended.

Trichloroacetic acid seems to be particularly adaptable for the purpose of removing moles and other skin lesions because of the qualities it possesses in dehydrating pathologic epithelial tissues, and in its failure to affect appreciably the healthy skin beneath. Eller<sup>1</sup> thinks that the dark pigmented moles are best left alone unless they show evidence of growth. The writer has occasionally

removed large pigmented moles successfully, a few as large as an inch in diameter. He is inclined to believe that failure in the attempts to remove these pigmented moles occurs when the applications are not continued sufficiently long to permit the entire growth to become dehydrated. Some of these neoplasms absorb the acid solution more slowly than others.

Taussing<sup>2</sup> treats small epithelial lesions with trichloroacetic acid. We also have removed small epitheliomas with this remedy; however, there has never been any yielding to the temptation to undertake the removal of larger ones nor of birthmarks or other forms of nevi. The object of this communication is for the sole purpose of urging a more general use of this remedy in removing ordinary moles which are physically annoying to so many and which distract from the comely appearance of thousands.

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## CLINICAL NOTES FROM THE COLLEGE OF MEDICINE

### DIAGNOSIS OF BACILLARY DYSENTERY

REPORT OF A CHRONIC CASE ASSOCIATED WITH  
PERNICIOUS ANEMIA

J. A. GREENE, M.D., Iowa City

From the Department of Internal Medicine

Acute bacillary dysentery occurs rather more frequently in the temperate zone than is generally appreciated, as evidenced by the relatively large incidence of chronic stages of the disease and by the frequency with which dysentery bacilli are found during epidemics of diarrhea when these are subjected to thorough study. Since many observers, among them Strasburger<sup>1</sup>, agree that approximately five per cent of the acute cases become chronic, the four chronic cases observed at the University Hospitals during the past four years represent eighty acute cases. A brief discussion of the diagnosis of acute bacillary dysentery with the report of a chronic case associated with pernicious anemia, therefore, appears to be worthwhile.

The diagnosis of the acute stage is difficult and may be overlooked because: first, it has not been generally recognized that the disease occurs in this latitude; second, although severe forms of the dis-

ease occur, its course is frequently mild in a temperate climate; and third, the diagnosis depends upon uncertain, and often unavailable laboratory examinations. The clinical features in mild cases are often insufficient to arouse suspicion of the disease. Diarrhea is usually present in varying degrees, whereas abdominal cramps, pea soup or purulent stools and constitutional reactions may be absent. One should, therefore, bear in mind the possibility that even a mild diarrhea may be due to dysentery bacilli.

Isolation of the organism from the stool of a suspect establishes the diagnosis. However, it may be necessary to obtain several specimens early in the course of the disease as the chance of isolating the organism increases with the number of stools examined, and decreases as the disease progresses. Martin and Williams<sup>4</sup> report only 15 per cent success in isolating the organism from the first culture. Repeated cultures obtained during the first few days of the disease revealed the organism in 67 per cent of Soule and Heyman's<sup>2</sup> cases and in 70 per cent of Seligmann's<sup>3</sup> cases. The latter author succeeded in isolating the bacillus in only 38 per cent of all cases studied during the first twenty days and in less than ten per cent studied thereafter. Similar observations have been made by many authors, including Martin and Williams<sup>4</sup> and Feemster<sup>5</sup>. In mild cases, however, even repeated stool cultures may be worthless, according to Davison<sup>6</sup>. A greater percentage of positive results is obtained when the culture is inoculated by mucus or blood taken from a fresh stool specimen or directly from the rectum through a proctoscope. Isolation of the organism from old or dried stools is very difficult, in fact, culture media inoculated forty-eight hours after passage of a stool seldom show growth unless the specimen has been preserved on ice. These facts are of importance when it is necessary to send a specimen to a distant laboratory. In chronic cases stool cultures are seldom of diagnostic value even when an adequate bacteriologic laboratory is readily accessible. Positive results have been reported in less than one per cent of such cases by Seligmann<sup>3</sup> and Martin and Williams<sup>4</sup> and others. On the other hand Smyly<sup>7</sup> claims to have isolated the organism from 69 per cent of chronic cases studied by him.

The agglutination reaction has also been used in the diagnosis of the disease but there is no general agreement as to its value. Positive agglutinations were obtained by Davison<sup>6</sup> in all patients from whom agglutinable dysentery bacilli were isolated. Feemster<sup>5</sup> reports positive results in 65 per cent of his patients but did not attempt to agglutinate the isolated organisms. Agglutinins are not demonstrable in the blood until the sixth

to tenth day of the disease so that a negative result is an indication for a repetition of the test three or four days later. However, repeated, negative agglutinations do not necessarily exclude the diagnosis of the disease. A positive agglutination reaction is often confusing, as agglutinins persist in the blood for months or even years. A positive reaction signifies, according to Davison<sup>6</sup>, past or present infection, or previous inoculation. Menton<sup>8</sup>, on the other hand, observed positive reactions in apparently healthy persons who lived in districts where dysentery is rarely found and who had no history of diarrhea or dysentery. He believes that the occurrence of these reactions may interfere with the serologic diagnosis of the disease. Davison<sup>6</sup> claims to obviate this difficulty by a quantitative repetition of a positive reaction in three to five days, believing that the diagnosis may be made if a marked change in titre occurs.

Because of the lack of a satisfactory laboratory method for the diagnosis of bacillary dysentery other laboratory methods are being investigated. Studies of the bacteriophage content of the stools by Feemster<sup>5</sup> have produced some encouraging results but the method is not generally available.

Many acute cases of bacillary dysentery undoubtedly would be diagnosed if the occurrence of the disease were generally appreciated and the diagnostic methods available adequately used. The agglutination reaction is probably more important than other diagnostic methods since it is generally available.

The following case report emphasizes the fact that bacillary dysentery, as a possible diagnosis, must be constantly borne in mind when one is determining the etiology of diarrhea, even if other explanations appear.

#### CASE REPORT

Mrs. E. M. B., hospital number K14017, a white woman, fifty-six years of age, who had always lived in Iowa, entered the University Hospitals May 23, 1935. She had enjoyed good health until ten years preceding admission when intermittent swelling of feet and ankles was noted. Weakness and nervousness were present for six years, a persistent diarrhea for three years, paresthesia of extremities, yellowish color of skin and sore tongue and rectum for one year, prior to admission. She had never noted bloody, black, mucoid, or purulent stools. Intermittent abdominal cramps had occurred, but there was no history of fever, chills, or sweats.

Physical examination revealed a well developed, poorly nourished, pale, white woman who appeared chronically ill. There was a yellowish tint to the skin and the edges of the tongue were atro-



phic. Sensations of pallesthesia and two point discrimination were diminished over the lower legs. Varying degrees of albumin and an occasional cast were found on repeated examinations of the urine. The hemoglobin was 45 per cent, red blood count 1,880,000, and macrocytosis and poikilocytosis were observed in the blood smear. Free hydrochloric acid was absent from the gastric secretions even after histamine injection. The blood bilirubin (Van den Bergh) was 1.0 mg. per cent. Sigmoidoscopic examination revealed no ulcerations of the rectum or lower sigmoid. Roentgen ray studies of the gastro-intestinal tract revealed only a polyp of the stomach. A diagnosis of pernicious anemia with subacute combined sclerosis was made, and supported by a reticulocyte crisis and improvement in the red blood count and hemoglobin concentration which occurred following administration of liver extract. The diarrhea, however, persisted in spite of large doses of dilute hydrochloric acid by mouth. Occult blood in varying amounts was found repeatedly in the stools and two of four stool cultures revealed dysentery bacilli of the Shiga type. Agglutinations were positive for this type in dilutions of one to eighty. The patient's temperature rose at intermittent intervals from 101 to 104 degrees, remained there for one or two days and quickly returned to normal.

A frequency of five to eight daily stools decreased to one to three following twice daily colonic irrigations of 25 per cent Dakin's solution and four intravenous injections of 50 cubic centimeters of polyvalent antidysentery serum at three day intervals. Improvement in the patient's sense of well being was so marked that she elected to leave the hospital prematurely.

We were unable to ascertain whether or not the intrinsic factor reported by Castle<sup>9</sup> was present in the gastric secretions before the patient left the hospital, and therefore the relationship between the pernicious anemia and the chronic bacillary dysentery remains a subject for speculation.

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### THE FINLEY HOSPITAL CLINICOPATHOLOGIC CONFERENCES

#### DEATH FROM HEMORRHAGE IN GASTRIC AND DUODENAL ULCERS

F. P. McNAMARA, M.D., Dubuque

Hemorrhage is one of the most common complications of gastric and duodenal ulcers. In younger individuals, bleeding is rarely severe enough to cause death. In older patients a single massive hemorrhage or repeated hemorrhages may result in a fatal termination. The cases to be reported are instances of unexpected or relatively sudden deaths due to this cause.

#### CASE 1

The first case was that of a man, sixty-seven years of age, who was found dead. The coroner stated that there was considerable blood near the body and that the lips were covered by coagulated blood. As far as could be determined he had never consulted a physician.

*Necropsy (abstract):* The relevant findings were in the circulatory system and the stomach. The latter contained 1,000 c. c. of slightly changed blood. The intestine contained 700 c. c. of blood. A large duodenal ulcer with a firm, fibrous base was found just beyond the pylorus (Fig. 1). An eroded, stiffened artery, evidently the source of the hemorrhage, could be made out at one side of the ulcer. There was a well marked generalized arteriosclerosis with a tendency to intimal ulceration. The aortic and mitral cusps were thickened and a few minute vegetations were seen on each. The aortic leaflets were partly calcified.

*Anatomic diagnosis:* Primary: duodenal ulcer with a massive hemorrhage. Subsidiary: arteriosclerosis; chronic and subacute mitral and aortic endocarditis; calcification of the aortic cusps.

#### CASE 2

The second case was that of a white man, seventy-one years of age, who was first seen three days before death when he complained of "weakness, loss of appetite, and tarry stools."

*Past history:* Five months ago the patient fell from a ladder and he felt as though something "gave way in his abdomen." Shortly afterward he was kicked in the abdomen by a horse but was able to continue at his work as a blacksmith.

*Present illness:* Two weeks ago he lost his appetite, his bowels became loose and he had passed tarry stools ever since. He had not vomited and had had no abdominal pain. He stated that he had lost twenty pounds in weight during the past five months. He noticed that his ankles



Fig. 1. Large duodenal ulcer resulting in a fatal hemorrhage.

and hands swelled during the day and that it was necessary for him to void twice each night. Recently he had also been subjected to attacks of dizziness.

*Physical examination:* The patient was a well developed man weighing 157 pounds, but he had evidently lost weight. The head was negative; there was marked pyorrhea, and the tongue was heavily coated. The lungs were clear; the heart was moderately enlarged, but otherwise negative; the blood pressure, 168/78. There were no abdominal masses or points of tenderness. There was well marked edema of the legs and ankles. The prostate gland was firm but not enlarged. The urine showed a heavy trace of albumin, hyaline and granular casts, an occasional leukocyte and red blood cell. The feces were definitely tarry.

*Clinical course:* The patient had a profuse hemorrhage from the stomach two days after the first visit and subsequently had three others, consisting of a cupful of bright blood. He continued to pass tarry stools. He failed progressively in spite of treatment and died on the third day after he was first seen.

*Clinical diagnosis:* Gastro-intestinal hemorrhage; question of carcinoma or ulcer; chronic nephritis; arteriosclerosis; cardiac hypertrophy.

*Necropsy (abstract):* There was generalized arteriosclerosis which was most marked in the abdominal aorta and its branches. The kidneys together weighed 155 grams, and grossly and microscopically presented the picture of chronic glomerular nephritis plus the changes due to arteriosclerosis. The heart was moderately hypertrophied and weighed 475 grams. The stomach was dilated and contained 1,000 c. c. of slightly changed blood. There was also considerable blood in the small intestine. The source of the hemorrhage was a rigid, sclerotic blood vessel found at one side of an ulcer three centimeters in diameter situated on the lesser curvature of the stomach. Microscopic studies of the ulcer showed no evidence of malignancy.

*Anatomic diagnosis:* Primary: 1. Chronic ulcer of the lesser curvature of the stomach with massive hemorrhage. 2. Chronic diffuse glomerular nephritis; arteriosclerosis; cardiac hypertrophy; edema of the lower extremities.

#### CASE 3

The patient, a white man, fifty-one years of age, was first admitted to The Finley Hospital eighteen months before death when he was treated for a perforating ulcer of the lesser curvature of the stomach. Under medical treatment the ulcer was cured as judged by x-ray studies and clinical symptoms.<sup>1</sup> He remained free from symptoms though there was no supervision of his diet until five weeks ago. He then began to have gastric symptoms and noted blood in his stools. He did not consult his physician until three days before death. At that time he was in a serious condition from loss of blood and was sent to the hospital.

*Course in hospital:* On admission the patient was in moderately severe shock. The blood examination showed white blood count, 9,800; red blood count, 1,650,000; hemoglobin, 32 per cent. The general examination was otherwise negative except for tenderness in the epigastrium. He was kept quiet by the use of morphine, and given hemostatic agents, but continued to bleed. The vomitus and stools contained bright red blood. He died while being prepared for a blood transfusion.

*Clinical diagnosis:* Recurrent gastric ulcer with hemorrhage.

*Necropsy (abstract):* Permission was obtained to examine the contents of the abdomen. The essential findings were in the stomach. The stomach and intestines contained 2,000 c. c. of slightly changed blood. The source of the hemorrhage was an ulcer two and one-half centimeters in



diameter found on the lesser curvature of the stomach (Fig. 2). An eroded, rigid blood vessel was found at the upper edge of the ulcer. There was practically no attempt at repair and the base



Fig. 2. Acute perforating ulcer of the left curvature of the stomach resulting in a fatal hemorrhage. The base of the ulcer is formed by the pancreas.

of the ulcer was formed by the pancreas which was bound to the posterior stomach wall by adhesions. Microscopic studies showed no malignancy.

*Anatomic diagnosis:* Acute (recurrent) perforating ulcer of the lesser curvature of the stomach; erosion of a gastric artery with massive hemorrhage.

#### COMMENT

The first case was that of a sudden death from a massive hemorrhage due to an eroded blood vessel in a chronic duodenal ulcer. The last two cases were deaths from continuous hemorrhages originating in sclerotic blood vessels at the base of gastric ulcers. Each case emphasizes the serious prognosis of bleeding peptic ulcers in elderly patients. Undoubtedly the bleeding continues because of the rigidity and lack of contractility of the blood vessel walls. In an excellent study of a series of 1,046 cases of bleeding peptic ulcer encountered at the State University of Iowa hospital, Fowler and Hurevitz<sup>2</sup> pointed out that with advancing age there was a gradual increase in the severity of bleeding as indicated by the following table:

	Average Age
Entire group	42.2 years
With hemorrhage	45.7 years
Severe, not fatal hemorrhage	46.9 years
Fatal hemorrhage	52.7 years

The realization of the fact that fatal hemorrhage is more likely to occur in older patients should influence the decision as to the type of treatment in bleeding peptic ulcers. As a group these patients are recognized as poor surgical risks and it is obviously safer to control the hemorrhage by medical means, i. e., hemostatic agents, gastric lavage and blood transfusions. However, if medical means fail as they are very likely to in this group of patients, surgical intervention should be seriously considered before the patient has lost so much blood that a fatal termination is almost certain.

I wish to express appreciation to Drs. Roy I. Theisen and G. C. Fritschel for the use of their clinical records.

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#### INVITATION FROM THE KANSAS STATE MEDICAL SOCIETY

The Kansas State Medical Society, through its president, Dr. H. L. Snyder, and its Committee on the Control of Cancer, has extended an invitation to the members of the Iowa State Medical Society to attend any of the following meetings which are being sponsored by that society in connection with a Cancer Control Program:

March 30.....	Chanute
March 31.....	Wichita
April 1.....	Dodge City
April 2.....	Hays
April 3.....	Salina
April 4.....	Topeka

Cancer topics of general interest to all physicians will be presented on these programs by the following speakers: Dr. Charles F. Geschickter of Baltimore, head of the Department of Surgical Pathology, Johns Hopkins University; Dr. Burton T. Simpson of Buffalo, director of the New York Institute for Study of Malignant Disease; and Dr. Frank L. Rector of Evanston, representative of the American Society for the Control of Cancer. For each of the above dates, scientific meetings are scheduled for the afternoons, and public meetings for the evenings. No admission charge will be made at any of the meetings, and members of the Iowa State Medical Society will be most cordially welcomed at any or all of the sessions.

# STATE DEPARTMENT OF HEALTH



## Right to Perform Autopsies and Necessity for Consent

HERMAN B. CARLSON, Attorney, Director, Division of Law Enforcement

In discussing this subject it seems well to define at the outset several of the terms mentioned herein, viz., "inquest," "postmortem" and "autopsy." According to Dorland's American Medical Dictionary, Fifteenth Edition, the word "inquest" is defined as "inquiry by a coroner into the manner of a death," and in Webster's New International Dictionary, Second Edition, as "a judicial or official inquiry or examination, especially by a judge; as, a coroner's inquest." "Postmortem" is defined in Dorland's American Dictionary as "Latin for after death," and in Webster's New International Dictionary, as "an examination of a body after death, usually with such dissection as will expose the vital organs for cause of death, the character and extent of changes produced by disease, etc.; an autopsy." "Autopsy" is defined in Dorland's American Medical Dictionary as "the postmortem examination of a body," and in Webster's New International Dictionary as "1. Personal observation or examination; seeing with one's own eyes; ocular view. 2. Inspection and usually partial dissection of a dead body which has been opened, so as to expose important organs, either to ascertain the cause of death, or, if this is known, the exact nature and extent of the lesions of the disease, and any other abnormalities present; a postmortem examination, a necropsy."

### I. Inquest

Right to hold inquest. A coroner is required to hold an inquest upon the dead bodies of such persons only as are supposed to have died by unlawful means, and in such other cases as are required by law.

### II. Autopsy

#### A. Right to order.

1. A judge of any district court may order a disinterment for the purpose of

holding an autopsy in those instances where civil or criminal proceedings have been instigated.

2. A coroner may order an autopsy when in his opinion that is the appropriate means of ascertaining the cause of death.

#### B. Right to perform. A physician may perform an autopsy only after proper authorization has been obtained.

1. Preferably in writing from the next of kin (as addendum No. 1) or
2. In compliance with a statutory requirement or pursuant to an order properly issued by a coroner acting within the limits of his legal authority.

#### C. Incurring of Liability.

1. Unlawful acts.
  - a. Performing an autopsy or necropsy without full authority.
  - b. Making a more complete postmortem examination than is authorized, if any restrictions have been ordered.
2. Careless or unskillful performance. No recovery possible.

A dead body in the strictly legal sense has no property rights but it does have sentimental value. Damages recoverable for an unauthorized autopsy are not for injury done to the dead body but for the wrong or trespassing on the right to the undisturbed possession and control of the body which belongs to those who are charged with the duty of burial. This duty in the case of married persons is held to devolve upon the surviving spouse. If the deceased is unmarried the duty devolves upon the next of adult kin.



*Addendum No. 1*

Suggested Form for Authority to Perform Autopsy.

"....., bearing the relationship of..... to....., the deceased patient, does hereby authorize the performance of an autopsy on the body of said patient with the object of ascertaining the correct cause of death.  
Dated..... Signed....."

## SUMMARY

1. Statutes of Iowa authorize autopsy in certain cases when made under the direction of a coroner or pursuant to an order of court.
2. The physician who performs an autopsy pursuant to an order by a coroner acting within legal authority cannot be held liable for damages, despite the refusal of consent from next of kin.
3. Autopsies cannot be performed by a physician or hospital without the consent of the individual having legal right to bury the body, unless such action is performed under a valid order, either by coroner or court.
4. The legal right to a body by next of kin is absolute and may not be infringed upon by one without authority or consent.
5. Damages may be recovered from a physician performing an autopsy without proper authority or beyond the limits of restriction.
6. Recovery, if any, is not for the careless or unskilled performance, but for the wrongful doing of an autopsy.

#### GUEST SPEAKERS TO DISCUSS MENINGOCOC- CIC MENINGITIS, DIPHTHERIA AND CONVALESCENT SERUM

The Eighty-fifth Annual Meeting of the Iowa State Medical Society will be held in Des Moines, April 29, 30 and May 1. This meeting will be preceded on Tuesday, April 28, by the Tenth An-

nual Meeting of the Iowa Public Health Association, at the Hotel Savery.

Prominent among guest speakers, scheduled to take part in the coming programs, is Archibald S. Hoyne, M.D., Medical Superintendent, Municipal Contagious Disease Hospital and Attending Physician and Chief, Department of Contagious Diseases, Cook County Hospital, Chicago, Illinois. Dr. Hoyne will present the subject of meningococcic meningitis, with emphasis on a new form of therapy, in the development of which he has played a major part. Arrangements are also being made for Dr. Hoyne to discuss the treatment of diphtheria at the meeting on Tuesday.

Sidney O. Levinson, M.D., Director of the Samuel Deutsch Serum Center in Chicago, will discuss the value of convalescent serum in measles, scarlet fever and in the preparalytic stage of poliomyelitis.

Physicians and health officers will not want to miss the opportunity to attend the coming meetings. The detailed program of the Iowa Public Health Association will be printed in the April number of the JOURNAL.

#### HAVE YOU USED CONVALESCENT SCARLET FEVER SERUM?

As announced in recent numbers of the JOURNAL, the State Department of Health has available for distribution, a limited amount of convalescent scarlet fever serum. Urgent calls for serum from near and distant parts of the state, have been met during the past weeks. Physicians have reported gratifying results following the use of the convalescent serum in severe cases of scarlet fever. As stated in the February number of the JOURNAL, page 119, convalescent scarlet fever serum may be had by notifying the department by telegram or otherwise. Telephone numbers at the State Department of Health are as follows: 8:00 a. m. to 5:00 p. m., 4-9111, Extensions 137 or 103; after 5:00 p. m., 7-1417, or 5-0453.

## PREVALENCE OF DISEASE

	January, 1936	December, 1935	January, 1935	Most Cases Reported From
Diphtheria .....	55	92	46	Black Hawk, Polk
Scarlet Fever .....	817	694	296	Pottawattamie, Dubuque, Scott
Typhoid Fever .....	9	17	8	O'Brien, Monona
Smallpox .....	57	32	6	Woodbury
Measles .....	31	23	4,580	Woodbury, Poweshiek
Whooping Cough .....	101	66	55	Scott, Dallas
Cerebrospinal Meningitis .....	19	7	4	Polk, Scott
Chickenpox .....	392	545	301	Dubuque, Polk
Mumps .....	1,008	914	602	Boone, Black Hawk
Poliomyelitis .....	2	10	0	Clinton, Jackson
Tuberculosis .....	169	15	42	(For State)
Undulant Fever .....	7	11	14	(For State)
Syphilis .....	121	90	148	(For State)
Gonorrhea .....	174	138	172	(For State)

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THE COMMON COLD

Authorities agree that respiratory diseases cause a greater loss of occupational time in this country annually than any other class of diseases. It is estimated that these occupational losses represent a total of 90,000,000 days at a cost of \$450,000,-000. This figure assumes approximately 42,000,-000 workers in this country with an average incapacitation from colds of from two to three days. If we add to this figure, which represents dissipated earnings, the expenditures for medical care, drugs, nursing and hospitalization, the figure mounts to about \$1,000,000,000 to \$1,500,-000,000 annually. Because of this gigantic waste, clinicians and research workers have and are bending every effort toward a solution of the etiology of the common cold, which when established will no doubt provide a basis for a more specific curative therapy.

Prominent among the suggested causes of the common cold, and each advocated by observers whose investigations seem to support their claims are: first, an acid condition of the body; second, a lack of certain vitamins, particularly Vitamin A; third, breathing of irritating or polluted air; fourth, bacteria; and fifth, a filtrable virus or ultra-microscopic organism. With insufficient proof to establish any of these factors in a true causal relationship, the search goes on.

During the past two years, observation has added to the sum total of our knowledge and no doubt brought us nearer the solution of the problem. Outstanding in the field of research and apparently most promising in character, are the reported studies of Dr. Alphonse Raymond Dochez,\* whose work in the etiology of this disease supports the view that the specific agent may be one of the filtrable virus class. Bacteri-

ologic studies were made to establish the normal bacterial flora of thirteen individuals in normal health, and later, during periods when colds existed. These studies revealed a change in bacterial flora with the onset of a cold, due to the preponderance or invasion of *H. influenzae* and *Streptococcus hemolyticus*. Inasmuch as these organisms are not infrequently found in the nose and throat of normal individuals, and that they were not strikingly present or increased during the early stages of the cold, Dochez is reluctant to ascribe to them anything more than the rôle of secondary invader.

Following these observations, he conducted a series of experiments with the chimpanzee, in whom the common cold manifests symptoms closely resembling those in the human being. He observed that experimental colds could be transmitted from ape to ape by intranasal inoculations of filtrates of the nasal secretions from infected animals, and that the filtrates from these animals were again infectious in a second experimental animal. Inasmuch as pure cultures of the ordinary organism observed in the human nose during the stages of a common cold were insufficient to produce the clinical syndrome in the experimental animals, proof seems established that a substance in the filtrate and not the bacterial flora itself, was the potent factor. He repeated these observations, employing twenty-one human subjects, duplicating exactly his animal experiment. He concludes, "The contagious cold in human beings is due to an invisible agent which passes through filters, which hold back all ordinary bacteria."

While this work appears convincing and fits well into our general knowledge concerning the common cold, it has not solved the problem of the etiology of the condition, since the virus or organisms, if such be present, have not been isolated or studied biologically in pure culture. However, these observations recorded by Dr. Dochez would seem to be the most significant of those recorded in the study of the common cold during the past few years.

MARCHING WITHOUT A BAND

Who of us can resist the captivating rhythm of the military band? The blare of trumpets, the melody of reeds, the syncopation of trombones combine with responsive chords in the human breast, and the rhythmic beat of the drums stirs the spirit to march. It was no idle imagining of the artist that gave warmth and feeling to the memorable painting, "The Spirit of '76." The symbolic realism of the stirring fife and drum is the compelling note climaxed by the theme of

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patriotism in the flag. Wouldn't you like to fall into step and march with these illustrious patriots of this new country?

When the circus moves to town and the grand parade begins and band after band sweeps by, who among us is so unmindful of the seductive urge of the music in its full military time that we do not wish our years and dignity would permit us to take our places with the small boys who swell the parade? "Marching with the band," is an old adage and always implies the thought of following easily a compelling impulse. It is like rowing downstream, or eating when hungry. The reflex is automatic and a natural result of a particular stimulation. It is not so easy to march, however, when the band is silent, or when the circus has folded its tents and moved to the next town. Then only a steadfastness of purpose and strength of character can furnish the necessary stimulus. Then only do we have the opportunity of purposeful action.

In our society affairs we always find some who are willing to "march with the band," even if they are denied the pomp of brass buttons and a gaudy uniform. Others are unresponsive unless given all the trappings and a seat on the band wagon. The great majority of society members, however, need neither pomp nor music to keep marching. They are those who possess a steadfastness of purpose which guarantees accomplishments, regardless of conditions or circumstances.

A financial yardstick frequently serves as an accurate guide in appraising the actions of us mortals. We may drop a dollar bill in the beggar's hat once, or even twice, to impress the on-lookers with our generosity, but if this is done when no audience is at hand, and without duress or urge, one cannot doubt that the action is prompted by a spirit of true philanthropy and a fraternal feeling. Time was in our society when notices, duns, bills, statements, and even threats were required to secure membership dues so necessary for the maintenance of society activities. A brass band and a Fourth of July orator were hardly enough to secure a full membership before the closing week of the year. Year after year a steady increase in the prompt payment of dues has been noted and your county and state secretaries have been commended on their efficiency. Somehow, it seems to us, little credit has been given to the members themselves who have marched without a band and made this enviable record. We would not in any way discount the efficiency of the officers whose faithful services are so necessary for our success, but we would commend in no uncertain terms the members who so effectively uphold the officers' hands.

Let us look at the figures. Records indicate that there are now about 3,000 physicians registered to practice medicine in Iowa, and approximately 85 per cent, or 2,500, are eligible for membership in the State Society through its component county societies. In 1934 a total membership of 2,211 was enrolled, and in 1935, the figure was increased to 2,297, with 1,062 paid in full on or before the first of March. This year 1,576, or 68 per cent of the total expected membership for the year, have remitted dues, and twelve counties are listed as one hundred per cent.

To some this may seem solely the result of a more favorable economic condition in Iowa which reflects itself in a greater income to physicians, and consequently an ability on their part to pay. To us it means far more. It means that the members have confidence in their leaders and in the policies developed through their elected representatives. It means that Iowa physicians treasure fraternity and the privilege of scientific study and debate. It assures confidence in the ability of organized medicine to further medical science in the protection of the public health. And finally it means to us a steadfastness of purpose—a keeping of the faith, which causes one to march without a band.

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#### CONGRESS OF MEDICAL EDUCATION, MEDICAL LICENSURE AND HOSPITALS

Chicago, February 17-18, 1936

The Thirty-second Annual Congress on Medical Education, Licensure and Hospitals, recently held in Chicago formed another important milestone in the evolution and changing order of medical training and methods of licensure that has characterized the past three decades. These annual conferences, which comprise a two days' session, are arranged by the Council on Medical Education and Hospitals of the American Medical Association in conjunction with the Federation of State Medical Boards and in participation with leading medical educators and representatives of the Association of American Medical Colleges.

The first forenoon is usually devoted to the discussion of general subjects in medical education and licensure, which this year included a report of the Council on Medical Education and hospitals by the chairman, Dr. Ray Lyman Wilbur, pertaining largely to the resurvey of medical schools now being carried on by the Council; a paper by Dr. George F. Zook, Ph.D., President of the American Council on Education, Washington, D. C., on "The Accrediting of Higher Institutions," the discussion of "Consistency versus

Chaos in Medical Education and Licensure" by Walter L. Bierring, M.D., and the closing paper by President Arthur C. Willard of the University of Illinois on "The State University and Professional Education," which was very ably discussed by President Gilmore of Iowa City.

The afternoon program of the first day consisted of a symposium on the scope and objectives of the undergraduate teaching of obstetrics, in which the following clinical teachers of obstetrics participated: Drs. George W. Kosmak of New York, Charles B. Reed and Fred L. Adair of Chicago, E. D. Plass of Iowa City, and Paul Titus of Pittsburgh. The public health viewpoint of this subject, particularly with reference to the high maternal and infant mortality rate in certain sections, was presented by Dr. Robert H. Riley, Director of the Maryland State Department of Health, and Dr. Waller S. Leathers, Dean of Vanderbilt University School of Medicine, Nashville, and former state health officer of Mississippi. An interesting point was made by Dr. Plass that the blame of obstetric mortality should not be placed entirely at the door of the American teachers of obstetrics.

Separate programs were arranged for the forenoon and afternoon periods of the second day by the Council on Medical Education and Hospitals and the Federation of State Medical Boards respectively. The forenoon program arranged by the Council presented the social and economic phases of a student's training in preparation for medical practice. This discussion on medical economics was quite different from that of a year ago when practically every paper contained some reference to health insurance in its relation to the future practice of medicine. In this symposium Dr. Nathan B. VanEtten, speaker of the House of Delegates, American Medical Association, presented an interesting paper on "What is the Social Objective of the Young Physician?", commenting on the inadequacy of the present plan of training to prepare the young physician for his place in modern society. Dr. Richard E. Scammon of the University of Minnesota, presented some of his "Observations on the Social Background of Medical Practice in Great Britain," which offered an interesting contrast to conditions in this country. The "Instruction of Students and Interns in the Legal, Social and Economic Influences Affecting Medical Practice" was presented by the Dean of Yale University School of Medicine, Dr. Stanhope Bayne-Jones, and a concluding paper on "The Present Curriculum and the Aims of Medical Education: Are They Compatible?", by Dean Langley Porter of the University of California Medical School, com-

pleted a distinctly worthwhile and rather unique discussion.

The afternoon program of the Council at which Dr. Fred Moore presided, was equally interesting. The opening paper by Dean E. P. Lyon of the University of Minnesota, bore the title "Swans Sing Before They Die," and presented a rare philosophic retrospect interspersed with abundant humor, of a long experience as an administrator of a medical school. In projecting a glance into the future of medical education, he proposed a seven year course, two in the pre-medical sciences, and five in the training of medicine with a closer linking of the several divisions and greater emphasis to be placed on a background of a more cultural nature. Dr. J. A. Curran of New York City discussed the "Function of the Hospital in the Training of Interns and Residents"; the "Laboratory of Pathology in a Small Hospital" was presented by Professor Karsner, Director of the Institute of Pathology, Western Reserve University, Cleveland; and Dr. W. McKim Marriott, Dean of Washington University School of Medicine, St. Louis, spoke on the "Newer Points of View Concerning the Use of the Out-Patient Department in Medical Education."

The Federation of State Medical Boards had two interesting programs on the second day of the Congress. The forenoon session consisted of a symposium of the relation of licensure to a resurvey of medical schools. The responsibility of the Federation in this survey was invoked by Dr. W. W. Cutter, Secretary of the Council on Medical Education and Hospitals. The two year medical school and its part in the present scheme of medical education was discussed by Dr. G. M. Williamson of North Dakota, and Dr. B. J. Lawrence of North Carolina, both secretaries of state examining boards and from states in which two year medical schools are in operation.

Comments on National Board Examinations were presented jointly by Dr. J. S. Rodman, Medical Secretary, and Mr. E. S. Elwood, Executive Secretary of the National Board, with particular reference to their influence on educational methods and state board examinations. The "Final Objective" of the survey was summed up by Dr. Harold Rypins of the New York board, with closing discussions by Dr. John H. J. Upham of Ohio and Dr. Willard C. Rappleye of New York City.

It was the consensus of opinion that unity of action and understanding between the Council on Medical Education and Hospitals of the American Medical Association, and the Federation of State Medical Boards must be maintained in carrying out the resurvey of medical schools, since this



would be the only assurance of united support of the final objectives to be determined. At the afternoon session the subjects for discussion were of special interest to state board members, such as narcotic legislation, enforcement procedures, foreign medical credentials, experiences with basic science laws, and psychiatry as a requirement for licensure.

One of the happy occasions of the Congress and the only social function, was the annual Federation dinner on the first evening. It was attended by one hundred and ten guests. The presidential address, delivered by Dr. I. D. Metzger of Pittsburgh, on "The Art of Medicine," was well presented and well received. The distinctive feature of the after dinner program was the address of Dr. Eugene A. Gilmore, President of the University of Iowa, on "The Responsibility of a University in Medical Training." It attracted general interest and many favorable comments. To Iowa friends it may not be generally known that President Gilmore came to our university with a background of experience that explains his sympathetic interest in the welfare of physicians and all matters pertaining to higher standards in medical training. As Vice-Governor of the Philippines during a period of eight years, he was in charge of the Public Health Service of the Islands, including a population of thirteen million people, as well as having supervision of a leprosy colony of 6,000 patients and several large general hospitals.

The principal impression gained from this Congress is that we are entering upon a new phase in the evolution of medical education and licensure in this country, as indicated by:

1. A wider recognition of the educational aspects of the problem and the placing of greater responsibility upon the universities to provide medical training in keeping with scientific development.

2. It is likewise evident that the time has arrived again to take stock, as it were, and to determine if the present plan of medical training is fulfilling the needs of medical service, in keeping with changing conditions and the highest purposes of American Medicine.

3. Two facts stand forth having special implication for medical education.

- a. The restriction and higher qualifications of the different medical specialists.

- b. In consequence of this and other evident tendencies, the general practitioner, the basic doctor, is being restored to an honorable place in the practice of medicine.

The training of the specialist comes properly in the field of postgraduate medical education, as does that of the medical teacher, research investigator, and public health official. The significant announcement was made at this meeting that within the year special boards in the twelve recognized medical specialties will be established and hereafter only those candidates will be certified, who have completed the required course of special training and been satisfactorily qualified in the particular specialty. All this has been accomplished within three years after the movement for special certifying boards was inaugurated in 1933 at the Milwaukee session of the American Medical Association. There will be fewer medical specialists in the future, but they will deserve the designation, for they will have passed the scrutiny of their peers. Thus again it has come to pass that the medical profession has solved another of its important problems.

It seems rather well established that only fifteen per cent of those who become ill require the services of a specialist, and thus 85 per cent of those who are sick and a large proportion of those who are apparently in good health will come within the service of the general practitioner. It is, therefore, proper to assume that approximately 75 per cent of the registered medical students of tomorrow will depend upon our medical schools for the comprehensive training necessary for the general practice of medicine. This constitutes a distinct challenge to the educational forces, one that entails a number of distinct reforms in medical education which may be more clearly defined after the completion of the present resurvey of American medical schools. If we are correct in our conception of the sphere of service of the future practitioner, there will be need of much reform in the training of the "basic" doctor.

Much has been said in recent years of the changing order of modern society with its invasion of lay control of medical practice, and the theory has been advanced that medical schools must modify their objectives to prepare the student for professional work in this changed environment. Does this imply that medical schools should subordinate themselves to these social trends and develop medical servants to social convictions? Or, as so aptly stated in a recent address by Dr. Schwitalla, "would it not be far more consistent to develop medical guides and leaders of popular thought to direct these trends into channels of thought suggested rather by the personal character of medical service than by group considerations, and thus maintain the physician in his traditional place of honor and privilege in society." W.L.B.

**NORTHWEST REGIONAL CONFERENCE**

The annual meeting of the Northwest Regional Conference was held in the Palmer House in Chicago, February 16, 1936. Officers representing the State Societies of Illinois, Indiana, Wisconsin, Michigan, Missouri, Kansas, Nebraska, Colorado, North Dakota, South Dakota, Minnesota and Iowa were in attendance. The presidents of most of these state organizations were present.

The attendance was remarkably good considering the condition of railroads and highways and the temperature of fifteen degrees below zero. Some fifty ate breakfast together at eight-thirty o'clock and when Dr. Fay called the meeting to order at ten o'clock, one hundred and twenty-five were registered. All speakers were present and with but one exception, all who were on the program for discussions were in attendance, and he sent a substitute. The papers showed careful preparation and from the discussion it was very evident that the profession is wide awake to the new schemes being offered to disrupt the present plans for the private practice of medicine. One of the most interesting guests was Dr. E. H. Oschner, author of "Social Security," which is a book every doctor should read. The author has waived his royalties and the book may be secured from the Social Security Press, 538 South Wells Street, Chicago, Illinois, for a very small sum.

The following officers were elected for 1937: Dr. W. F. Braasch of Rochester, Minnesota, president; and Dr. Fred Moore of Des Moines, Iowa, secretary. The Iowa State Medical Society will be host in 1937, the meeting to be held in Chicago at such a time as shall be determined by the officers.

Dr. Hamilton of Illinois should be congratulated for the successful 1936 Conference. He and Dr. Fay conducted a most excellent program which will indeed be difficult to surpass.

ducted from the net income. In addition the physician may deduct the following expenses:

1. Cost of supplies, such as dressings, drugs, thermometers, etc.
2. Cost of operating automobile used in making professional calls.
3. Dues to professional societies (but not dues to social clubs).
4. Rent paid for office rooms.
5. Cost of fuel, light, water, telephone, etc., used in office.
6. Hire of office assistants.
7. Subscriptions to medical journals and books.
8. Expenses incurred attending medical conventions.
9. Traveling expenses incurred on strictly professional business.
10. Insurance premiums paid for professional protection.
11. Expenses in defending malpractice suits.
12. Cost of spectacles, etc. (but not services in connection with the fitting of spectacles).

It should be called to your attention that the Commissioner of Internal Revenue has ruled that expenses incurred in attending postgraduate courses are not deductible.

A more detailed article on this subject is to be found in the *Journal of the American Medical Association* for January 11, 1936, and those desiring more complete information are referred to that publication.

**THE PHYSICIAN'S INCOME TAX**

While the Revenue Act of 1935 amended in several respects the previous existing income tax provisions, no changes were made which would affect physicians as a class. However, from time to time the State Society office receives requests from members for information relative to authentic deductions, according to the federal statutes. For that reason we are presenting the following items, in the hope that the material will be valuable to any of our members who have not yet filed their returns.

Ten per cent of the net income, providing this amount is not in excess of \$14,000, may be de-

**MEDICAL MINSTRELS  
OF 1936**

*Presenting*  
**The Social Security Act**

I. S. M. S. Smoker      April 29, 1936



# SPEAKERS BUREAU ACTIVITIES

## POSTGRADUATE COURSES

The postgraduate courses which were to be given at Boone and Sheldon were cancelled upon the request of members of both localities, and will not be presented until autumn. It was felt that the courses could not be attended by many physicians because of the condition of the roads, and for that reason the cancellation was requested. The Speakers Bureau Committee will endeavor to obtain the same lecturers next fall, and will present the two courses at that time.

The laboratory course at Creston started February 26, and will conclude April 15. There were twenty-seven present at the first meeting, but enrollments will still be accepted. The schedule of lecturers is as follows:

- February 26—Immunology of the Blood, I. H. Borts, M.D., Iowa City.  
 March 4—Urinalysis, H. W. Morgan, M.D., Mason City.  
 March 11—Bacteriology, W. W. Herrmann, M.D., Iowa City.  
 March 18—Stool and Gastric Analysis, W. D. Paul, M.D., Iowa City.  
 March 25—Tissue Examination, F. P. McNamara, M.D., Dubuque.  
 April 1—Electrocardiography, H. W. Rathe, M.D., Waverly.  
 April 8—X-ray, H. Dabney Kerr, M.D., Iowa City.  
 April 15—Hematology—F. H. Lamb, M.D., Davenport.

The fee for the eight meetings is \$7.50. Enrollments may be made with Dr. John C. Parsons of Creston. The meetings will be held in the Greater Community Hospital at Creston, starting at seven p. m. and concluding at nine. Every physician who is interested is cordially invited to attend.

## UNIVERSITY COURSE

Through the kindness of the faculty of the College of Medicine of the State University of Iowa, the Jefferson County Medical Society and the Speakers Bureau Committee of the Iowa State Medical Society will present a six weeks' series of lectures in medicine and surgery at Fairfield, starting Thursday, March 12. Meetings will be held in the Nurses'

Home, 706 East Burlington Street, at 7:00 p. m. The fee for the six lectures will be \$7.50, and registration may be made with Dr. Ludwig Gittler of Fairfield.

The following subjects will be discussed:

- March 12—Malignancies of the Urinary Tract, with Special Reference to Treatment, N. G. Alcock, M.D., Iowa City.  
 March 19—Diagnosis and Treatment of Nephritis—W. M. Fowler, M.D., Iowa City.  
 March 26—Medical Treatment of Non-tuberculous Diseases of the Lungs, H. M. Korn, M.D., Iowa City.  
 April 2—Surgical Treatment of Diseases of the Lungs and Pleura, H. L. Beye, M.D., Iowa City.  
 April 9—Specific Treatment of Infectious Diseases—P. C. Jeans, M.D., Iowa City.  
 April 16—Minor Surgery of Today—F. R. Peterson, M.D., Iowa City.

## RADIO SCHEDULES

### Iowa State Medical Society

- WOI—Wednesdays at 4:30 p. m.  
 WSUI—Mondays at 8:00 p. m.

- March 4—What's Behind the Prescription, J. Earle Galloway, Ph.C.  
 March 11—Headache, H. B. Henry, M.D.  
 March 18—Narcotics, I. H. Pierce, M.D.  
 March 25—Arteriosclerosis, William H. Rendleman, M.D.  
 April 1—Meningitis, Ralph H. Heeren, M.D.

### American Medical Association

Broadcasts weekly through the Red Network on Tuesdays at 4:00 p. m., Central Standard Time. WHO carries the program.

### Des Moines Academy of Medicine and Polk County Medical Society

- KSO—Wednesdays at 5:00 p. m.

- March 4—Sight Conservation.  
 March 11—A Day in the Nursing Service Bureau.  
 March 18—The Parents' Part in the Control of Communicable Diseases.  
 March 25—Insomnia.

# WOMAN'S AUXILIARY NEWS

*Edited by the Press and Publicity Committee*

MRS. DEAN W. HARMAN, *Chairman*, Glenwood, Iowa

## Muscatine County News

We have held seven meetings during this year. On October 23 we entertained the wives of the doctors attending the Southeastern Iowa Medical Association with cards, music and a tea. Our organization secured Dr. Fred Moore of Des Moines, who gave a talk on Diphtheria Prevention and Immunization at the Jefferson School in Muscatine. Our November program consisted of a book review, "Rats, Lice, and History," by Hans Zinsser. We held a guest night in January, the entertainment of the evening being furnished by students from the Junior College who debated the question of "Socialized Medicine." There was special music by a quartette, and a tea closed a pleasant evening. The February meeting was a luncheon at the Hotel Muscatine followed by the annual reports and the election of officers: president, Mrs. C. P. Phillips; president-elect, Mrs. P. M. Jessup; secretary, Mrs. T. I. Wigim; treasurer, Mrs. L. C. Howe.

## Polk County Auxiliary

Newly elected officers of the Polk County Auxiliary are: president, Mrs. Thomas B. Throckmorton; vice president, Mrs. E. R. Posner; secretary, Mrs. Floyd W. Rice; treasurer, Mrs. Arthur E. Merkel of Ankeny. The following committee chairmen have been appointed: social, Mrs. C. A. Sones, chairman, with Mesdames Dennis H. Kelly, George H. Watters, Charles H. Sprague, James A. Downing, F. W. Fordyce, L. K. Meredith, and H. E. Kleinberg as co-chairmen. Mrs. Raleigh R. Snyder, chairman of the program committee, will have the Mesdames Fred Moore, S. M. Magarian, H. I. McPherrin, Hugh B. Woods, Daniel J. Glomset, Leslie M. Nourse, Julius S. Weingart, and Russell C. Doolittle for co-chairmen. Mrs. James A. Downing, chairman of public relations committee, will have the Mesdames S. E. Lincoln, E. B. Mountain, Robert L. Parker, Addison C. Page, George H. McCreight, H. A. Minasian, and William R. Hornaday as co-chairmen. Mrs. Douglas N. Gibson will be chairman of the telephone committee, with the Mesdames Joseph B. Priestley, Walter D. Abbott, Walter Kirsch, William O. Purdy, Richard O. Pfaff, Lester D. Powell, and Julian M. Bruner serving as co-chairmen.

## National Executive Visits Iowa

On Saturday, February 15, Mrs. Rogers N. Herbert of Nashville, Tennessee, president of the Woman's Auxiliary to the American Medical Association, honored Iowa with a visit. The Auxiliary to the Pottawattamie County Medical Society entertained Mrs. Herbert and guests including Iowa's president, Mrs. M. C. Hennessy, Nebraska's president, Mrs. Tomlinson, and members from surrounding cities, as well as a delegation from Des Moines, at a luncheon in Council Bluffs at the Chieftan Hotel. Mrs. Herbert endeared herself with her personal charm to all who were so fortunate as to hear her. In a very interesting and inspirational address, following the luncheon, she emphasized the need in auxiliaries of correlation, coordination, and cooperation.

## Educational Value of Medical Exhibits

The popular appeal of the exhibits of scientific medicine is surprising. The public is greatly interested in the beginning and development of the human body. They are also tremendously interested in the architecture of the bodily machine; how it is constructed, in the form and function of the human body in health. They are interested in the relation of the internal organs to each other and to the skin surface. These various forms and functions have been described many times in a popular manner in popular magazines, but exhibits which clearly depict the architecture and function have a very definite appeal. The kind of material contained in medical exhibits should be of two types. First, one should use material of a natural appeal, creating the aspect of reality, such as actual charms and medicine bags which have been used by the Indians. Exhibits that can be examined, such as the respirator and the model of the various kinds of joints have a natural appeal for the visitor. The second type of material with a strong appeal is the motion picture, and we might mention also, dimensional diorama. By the promotion of health through educational medical exhibits a tremendous civic obstacle will be overcome and the way will be paved for the future generations. The importance and the precedence of seeking medical advice will be passed on, gathering force as it proceeds. In this way only will prevention, which is the ultimate goal of medicine, be achieved.

E. J. Cary, M.D.



## SOCIETY PROCEEDINGS

### Clinton County

The Clinton County Medical Society met Thursday, March 5, at the LaFayette Hotel in Clinton, for a dinner meeting, after which A. W. Erskine, M.D., of Cedar Rapids, spoke on The Cancer Problem in Iowa. The next scheduled meeting will be held Thursday, April 2, with the following program: The Obstetric Pelvis, E. D. Plass, M.D., of Iowa City; and Some Phases of Medical Education, E. M. MacEwen, M.D., of Iowa City.

### Dubuque County

The regular monthly meeting of the Dubuque County Medical Society was held Tuesday, February 11, in the nurses' class room of Finley Hospital. After the business session Dr. Roy I. Thiesen, program chairman for the meeting, presided over the following interesting and instructive program: Recent Advances in the Treatment of Vaginal Discharges, illustrated with lantern slides, H. C. Hesselstine, M.D., of the University of Chicago, and the Chicago Lying-in Hospital.

A. C. Pfohl, M.D., Secretary.

### Fremont County Annual Meeting

Officers elected at the annual meeting of the Fremont County Medical Society held in Sidney, Tuesday, February 11, include: Dr. G. L. Roark of Tabor, president; Dr. H. L. Coleman of Farragut, vice president; and Dr. A. E. Wanamaker of Hamburg, secretary and treasurer.

### Jasper County

K. L. Johnston, M.D., of Oskaloosa, furnished the scientific program for the Jasper County Medical Society at its regular meeting held Tuesday, February 4, in Newton. Dr. Johnston spoke on Goiter.

### Johnson County

The Johnson County Medical Society met in regular session Wednesday, February 5, at Youde's Inn in Iowa City. The guest speaker of the evening was Edward A. Schumann, M.D., professor of obstetrics, University of Pennsylvania, who discussed The Consideration of Obstetric Deaths.

### Linn County

The next meeting of the Linn County Medical Society will be held in Cedar Rapids, Thursday, March 12, and the following program will be presented by local physicians: The Physiology of the Uterus in Labor, W. E. Brown, M.D.; The Pathology of the Uterus in Labor, Charles S. Day, M.D.; Movement Disorders and Various Types of Gaits, J. Stuart Mc-

Quiston, M.D.; and The Practical Application of Electrocardiography, B. F. Wolverton, M.D.

### Polk County

The following program was presented for the Des Moines Academy of Medicine and Polk County Medical Society at its regular meeting held Tuesday, February 25, at the Hotel Fort Des Moines: Symptoms of Early Toxemias of Pregnancy, Walter E. Baker, M.D.; Treatment of Early Toxemias of Pregnancy, Floyd W. Rice, M.D.; Etiology, Symptoms and Pathology of the Late Toxemias of Pregnancy, A. D. James, M.D.; and Treatment of Late Toxemias of Pregnancy, William O. Purdy, M.D. The discussion was opened by Addison C. Page, M.D.

### Pottawattamie County

Arthur E. Hertzler, M.D., of Halstead, Kansas, professor of surgery, University of Kansas School of Medicine, was guest speaker for the Pottawattamie County Medical Society at its meeting held Monday, February 17. Dr. Hertzler spoke on The Present Trend of the Goiter Problem, and case presentations were given by W. E. Ash, M.D., G. V. Caughlan, M.D., and M. E. O'Keefe, M.D.

The next meeting will be held Monday, March 16, with Herbert W. Rathe, M.D., of Waverly, speaking on The Diagnosis of Coronary Disease.

### Scott County

The Scott County Medical Society held a dinner meeting Tuesday, February 4, at the Lend-a-Hand Club in Davenport. Honored guest of the occasion was R. H. Jaffe, M.D., professor of pathology at the University of Illinois College of Medicine, who addressed the group on The Classification of Splenomegalies.

### Shelby County

Tuesday, February 11, at the second of the regular monthly meetings scheduled by the Shelby County Medical Society for 1936, M. C. Howard, M.D., of Omaha, gave a lecture and lantern demonstration on Cardiac Irregularities. In addition to the members, visiting physicians from Avoca, Denison and Carroll were present for the meeting, which followed dinner at the Hotel Davis in Harlan.

A. L. Nielson, M.D., Secretary.

### Woodbury County

Members of the Woodbury County Medical Society were addressed by Robert S. Dinsmore, M.D., of the Crile Clinic at Cleveland, Ohio, on The Practical Points in the Treatment of Gallbladder Disease, at the meeting held Wednesday, February 12, at the West Hotel in Sioux City.

## PERSONAL MENTION

Dr. Marvin J. Blaess of Marshalltown was invited to attend the February meeting of the Chicago Ophthalmologic Society, on February 17, where he discussed "A Survey of Glaucoma Operations," in collaboration with Dr. Louis Bothman, professor of ophthalmology of the University of Chicago.

Dr. T. G. Herrick, formerly of Hubbard, has left that city to take over the practice of his father, the late Dr. R. C. Herrick, at Gilmore City. Dr. Herrick has practiced in Hubbard for six years.

Dr. Walter D. Abbott of Des Moines, addressed the annual meeting of the Fort Dodge Lutheran Hospital Staff, Wednesday, February 19, speaking on "The Diagnosis of a Brain Tumor."

Dr. J. C. Donahue of Centerville delivered the second in a series of talks being sponsored by the Speakers Bureau of the Iowa State Medical Society for the benefit of the junior college students. Dr. Donahue spoke in Albia Friday, February 21, on "Medicine as a Profession."

Dr. David D. King, formerly of Indianapolis, has associated himself with Dr. A. L. Braden in Wellman. Dr. King is a graduate of the University of Indiana, College of Medicine.

Dr. Roland W. Stahr of Fort Dodge was the guest speaker for the Rockwell City Parent-Teachers Association Thursday, February 6, taking for his subject, "Immunization."

Dr. Edwin J. Marble, who has been engaged in general practice with his father, Dr. P. L. Marble, at Liscomb, has just received word of his appointment to a fellowship in the Louisiana State Charity Hospital in New Orleans. He will leave at once to take up his new work.

Dr. G. E. Harrison of Mason City reviewed "Rats, Lice and History" by Hans Zinsser, at a meeting of the Mason City Woman's Club, Wednesday, February 12.

## DEATH NOTICES

Green, William Henry, of Bridgewater, aged sixty-two, died February 10, following an illness of several weeks. He was graduated in 1903 from Drake University College of Medicine, Des Moines, and at the time of his death was a member of the Adair County Medical Society.

Hayden, Arthur Sumner, of Wall Lake, aged sixty-three, died January 25, as the result of pneumonia. He was graduated in 1896 from the State University of Iowa College of Homeopathic Medicine, and at the time of his death was a member of the Sac County Medical Society.

Jappe, Christian Frederick, of Davenport, aged seventy-six, died February 3, following an extended illness. He was graduated in 1895 from the State University of Iowa College of Medicine, and at the time of his death was a member of the Scott County Medical Society.

Osineup, Frank A., of Waverly, aged seventy-three, died January 31, following an extended illness of heart disease. He was graduated in 1893 from the University of Illinois College of Medicine, Chicago, and at the time of his death was a member of the Bremer County Medical Society.

Riordan, James Cook, of Pocahontas, aged sixty-eight, died suddenly February 7, as the result of heart failure. He was graduated in 1894 from Rush Medical College, Chicago, and at the time of his death was a member of the Pocahontas County Medical Society.

## ANNUAL MEETING, IOWA TUBERCULOSIS ASSOCIATION

The Twenty-first Annual Meeting of the Iowa Tuberculosis Association will be held in Fort Dodge, Wednesday and Thursday, March 18 and 19. The scientific medical section will be presented Thursday, March 19, at 9:30 a. m., with Dr. John H. Peck of Des Moines, presiding over the following program:

Tuberculosis Surveys of School Children—T. J. Werle, Lansing, Michigan.

Finding the Case in a City Area—Miss Alma Hartz, R.N., Cedar Rapids.

A Tuberculosis Investigation in a Rural County—Miss Esther Wick, R.N., Manchester.

The X-ray in Pulmonary Tuberculosis—T. A. Burcham, M.D., Des Moines.

Summation—Improving Our Techniques—J. Arthur Myers, M.D., Minneapolis, Minnesota.

The Control of Heart Disease—Fred M. Smith, M.D., Iowa City.

12:15 p. m.—General Luncheon

J. A. Edwards, M.D., Presiding

Minnesota Methods—E. A. Meyerding, M.D., St. Paul, Minnesota.

Some Practical Points in the Tuberculosis Problem—John F. Allen, M.D., Omaha, Nebraska.

1:30 p. m.—Medical Session

A. A. Schultz, M.D., Fort Dodge, Presiding

Atherosclerosis of the Coronary Arteries—D. J. Glomset, M.D., Des Moines.

Primary Pulmonary Tuberculosis, with X-ray demonstration—R. W. Stahr, M.D., and A. H. Schumacher, M.D., Fort Dodge.

Teen-Age Tuberculosis—Sara B. Kalar, M.D., Ames.

Modern Treatment of Pulmonary Tuberculosis—J. Arthur Myers, M.D., Minneapolis, Minnesota.

All members of the Iowa State Medical Society are invited and urged to attend any or all of the sessions.



# HISTORY OF MEDICINE IN IOWA

*Edited by the Historical Committee*

DR. FRANK M. FULLER, Keokuk

DR. TOM B. THROCKMORTON, Des Moines

DR. JOHN T. MCCLINTOCK, Iowa City

DR. WALTER L. BIERRING, Des Moines

DR. PAUL W. VAN METRE, Rockwell City

DR. WILLIAM JEPSON, Sioux City

## History of Drake University College of Medicine\*

FERDINAND J. SMITH, B.S., M.D., Milford, Iowa

Drake University College of Medicine was organized in 1881. Drake University had been recently established and in its endeavor to assume the character of a university it began at once to organize professional departments, which would enable it better to sustain the dignity of such an institution. The University traced its origin to a Bible College founded at Oskaloosa, Iowa, in 1856 by the Disciples of Christ, and the feeling of its essentially religious character still lingered and influenced the forming of the medical school in a somewhat amusing manner, for we read that: "The scholarly men who made up the official body of the University created a medical department by bringing together a group of eclectic medical men. The board of trustees labored under the belief that eclecticism in medicine was based upon a broader conception of medicine than any other system and consequently better suited for an institution founded by a devoutly religious body of men!"<sup>1</sup>

The organization of a medical college was a comparatively simple matter in those days. To begin with, it was not such a costly enterprise as it would be now. The physical needs were met with a few class rooms, an anatomic laboratory, enough equipment to teach the student how to examine urine for specific gravity, acidity or alkalinity, albumin and sugar, which was the extent of laboratory teaching in chemistry. Other laboratories did not exist, and how could or why should they? The students were not prepared

for advanced laboratory work. Most of them had never gone beyond the public school grades, a few had a smattering of high school studies, and but rarely was there one who was fortunate enough to have a college education. Remembering, too, that the medical college was in session only about twelve or fourteen weeks each year for two years, one sees that even if it had been possible to have laboratories, there would have been no time to devote to such instruction.

Most of the teaching was didactic, the teachers delivered lectures each day, and after the first day spent ten to fifteen minutes at the beginning of each period in "quizzing," covering the topics under consideration the preceding day. The basic sciences taught included anatomy, physiology, chemistry, materia medica and therapeutics. The remaining subjects were theory and practice of medicine, of surgery, of obstetrics and diseases of women, of diseases of the eye, ear, nose and throat, of mental ailments, of medical jurisprudence and toxicology. Such pathology as was taught was given in connection with the lectures on the principles of the practical branches, and each teacher taught the pathology of the diseases upon which he was lecturing. The only laboratory in operation was that of anatomy.

During the years from 1884 to 1887, inclusive, when the writer was attending a medical college, the anatomic laboratory was intended to give a good course in dissection, but this course was sometimes very meager, owing to the difficulty of obtaining material. Bodies of negroes from the south were brought to the northern medical schools, and "body snatching" was much in vogue,

Author's Note: The writer extends to Dr. Jeannette Dean-Throckmorton his appreciation of and thankfulness for her assistance in making accessible sources of information in the State Medical Library and elsewhere.

even as late as 1887. The writer has in his possession a letter dated November 2, 1887, of which the following is a quotation:

"Dear Doctor:

"I got a letter from Pete (Pete was the demonstrator of anatomy) and he is in the market for fall chickens. \$40.00 each, not bad! Only wish I had some to sell. *Did* you ever hunt chickens? If so what would be the matter in driving down some night after I have discovered a *covy* and let us try to get a couple. Forty dollars, you know, is not bad, when one has good luck and gets *plenty*. There is an excellent field here as no one disturbs it.

"Say, write to me soon and let me know what you think of my scheme. In hopes to hear from you soon I am as ever

"Your friend, Dr. ———."

Eventually, laws were passed which made available to medical colleges the bodies of all persons who died in poor houses, insane asylums or penitentiaries, unless their relatives or friends would assume the burial charges.

In forming any judgment on the adequacy of medical teaching at a certain time, it is necessary to take into consideration the status of medical science at the same period. In other words, one must ask not only, "What was taught?" but also, "What was there to teach?" It was not until the early eighties of the nineteenth century that Koch was engaged in his epoch-making discoveries in bacteriology, opening up ever increasing vistas in that field. Pasteur and Lister, the former in France, the latter in England, were also at work along this line; but even after Lister published his investigations and gave an insight into the brilliant results he was achieving in overcoming blood poisoning, infections and inflammations, it is truly amazing how much opposition developed amongst some of the best surgeons and obstetricians, men of ability and intelligence. I have in mind one such surgeon, who was bitterly opposed to Lister's methods and prided himself on being an aseptic surgeon. This same surgeon had one operating gown, which he wore at all operations. When the day's work was done, this gown was hung up behind the operating room door, unsterilized, unwashed, until the next day, and thus it went from day to day and for months without cleansing. The wonder of it all was that in spite of his "technic" he did achieve very good results for those days and was one of the best surgeons in the country.

In considering the brevity of the course and the other deficiencies of the medical schools of those times, it must also be remembered that the medical school made no claim to fit students for the practice of medicine. It was necessary for

those who aspired to the degree of doctor of medicine to enter the office of a reputable physician, who became his "preceptor" and directed his studies. As soon as he could do so advantageously, the student was taken along on the doctor's rounds, where he watched the doctor examine his patients, listened to the advice he gave them and saw what he did for them to restore their health. As he progressed, he was permitted to help his preceptor carry out office treatment, to give an anesthetic during an operation, and in many other ways to acquire practical experience. This took the place of the hospital clinics, for hospitals were not found except in the very large cities.

It is a remarkable fact that beginning in the year 1879 there was in operation at the Iowa State College, at Ames, Iowa, a college of veterinary medicine with stiffer entrance requirements and a longer and fuller course of instruction than any college of human medicine in the country. The applicant for admission had to be a high school graduate or pass an examination in subjects usually taught in high schools, and the course for the degree of bachelor of veterinary medicine was two years of nine months each, and for the degree of doctor of veterinary medicine four years of nine months each. This school afforded the student didactic and laboratory courses in the fundamental sciences (chemistry, bacteriology, pathology, anatomy, histology, physiology and embryology) in addition to the practical branches. Dr. Stalker, a veterinarian, was head of the school and taught all the practical branches, while Dr. D. S. Fairchild, who later became dean of the Drake College of Medicine, was professor of comparative anatomy, pathology, materia medica and therapeutics, and at times of physiology, receiving for all of this the munificent salary of \$1,000 a year. This school is still functioning and is considered one of the best, if not the best, of the veterinary colleges in this country today.<sup>2</sup>

It was at about the time the Drake College of Medicine was first organized that there began a movement in the profession to exercise some control over medical education through the regulations of the various states. The first step was to set up certain standards for medical colleges which must be met before a school was "recognized" by the State Medical Board and permitted to graduate students eligible to practice medicine legally in the state. By 1887 further progress in medical regulation had been achieved, and it was necessary for the graduate to register with the State Board in order to practice legally.<sup>3</sup>

On the organization of the college of medicine of Drake University, Dr. E. H. Carter was appointed dean and also professor of theory and



practice of medicine. He was succeeded in 1885 by Dr. I. W. Martin, who served until 1887. Other members of the faculty were Drs. J. G. Hall, science and art of surgery; E. M. Harris, diseases of the nose and throat; N. L. Van Sandt, gynecology; B. I. Gadd, materia medica and therapeutics; J. S. Lee, chemistry and toxicology; H. O. Conway, anatomy, descriptive and surgical.<sup>4</sup>

After a number of years the meeting of the faculty became discordant, and the character of some of the meetings was so abhorrent to the University trustees that the school was discontinued as a part of Drake University.<sup>5</sup> However, it seems that the faculty continued to function as a college for a while longer; for there is a notice in the *Vis Medicatrix* as follows:—"Iowa Eclectic College of Des Moines versus the Iowa State Board of Health and Medical Examiners has been decided in the district court in favor of the board. The 'college,' however, has appealed to the supreme court on the grounds that the Board has exceeded its powers, and that the law is unconstitutional. In the meantime their diplomas will still fail of recognition by the Board, so that the extent of their 'pernicious activity' seems likely to be small until the appeal is acted upon."<sup>6</sup> Diligent search fails to reveal what, if any, court action was taken in this case, nor can the exact date of the demise of the institution be ascertained.

In 1874, or about that time, Dr. A. G. Field began to talk in favor of founding a medical school in Des Moines, and he finally succeeded in interesting Drs. Kennedy and Blanchard. Conferences were held with increasing frequency and Drs. Fairchild and Priestley and others were also consulted and promised their support.<sup>7</sup> One of the arguments advanced in behalf of this move was that Des Moines, being the State Capital, was sure to grow and out-distance all of the other cities of the state, and that, because the city was centrally located with reference to the state as a whole and the surrounding country, was well developed and settled, and would eventually become much more densely populated, they could envisage the building of hospitals in the city and the possibility of developing a large and fine ambulant clinic. The greater size of the city would provide a much better opportunity for the selection of a group of able teachers to constitute a faculty for the college. An organization was not effected until April, 1882.<sup>8</sup> The medical college was begun on a private and independent basis. The first dean of the school was Dr. John A. Blanchard, who was also head of the department of theory and practice of medicine. The following gentlemen were members of the first faculty:

Drs. A. C. Simonton, principles and practice of surgery; J. F. Kennedy, obstetrics and diseases of children, and secretary of the faculty; H. A. Ward, gynecology; W. W. Hale, L.L.B., materia medica and therapeutics; F. E. Cruttenden, diseases of the throat and nasal passages; C. M. Colvin, adjunct in gynecology and demonstrator in anatomy; D. S. Fairchild, physiology and pathology; E. H. Hazen, eye and ear; Professors C. C. Nourse, medical jurisprudence; and T. E. Pope (professor of chemistry at the Iowa State College), chemistry. The newly organized faculty circularized the profession as follows:

"In issuing this circular announcing the organization of the College of Physicians and Surgeons of Iowa, at Des Moines, the incorporators desire to assure the profession that it is organized in the interest of a higher standard of medical education and that it will be the aim of the faculty to merit the confidence of the physicians of this and other states.

"Our requirements for graduation will be kept up to the standard of the best medical schools of the country. Three full years of study under the direction of a regular physician, including not less than two full lecture terms; or a graded lecture course of three years, will be required in all cases. Also a good preliminary education in the higher English branches will be demanded.

"The facilities for clinical instruction will be equal to those of any school, except such as are located in our largest cities, and will increase with the growth of the city.

"The college year will begin on the second Tuesday of October, 1882, and will include twenty weeks of instruction.

#### TERMS

Matriculation fee (paid but once).....	\$ 5.00
Tickets for all lectures (twenty weeks)...	40.00
Demonstrator's ticket .....	5.00
Fee for final examination.....	25.00

"Material for dissection was furnished at cost, and a hospital ticket was gratuitous."

The opening of the college was marked by an able address delivered by Dr. D. S. Fairchild in the main lecture room on the upper floor of a building adjoining the old Register printing office on Court Avenue. The college enrolled eight students in its first year, and of this number three were graduated. The standards of the school were no different from those of the great majority of American medical schools. This was due in part to a keen desire to obtain students; schools which increased the standards above the general run or which lengthened their courses were avoided by prospective students. Northwestern College of Med-

icine and Rush Medical College, both in Chicago, and the College of Medicine of the University of Michigan were at that time the largest and most influential of the western schools. Their annual course of lectures, starting early in December, continued for sixteen weeks. Many of the larger cities had more than one college, and there were homeopathic and eclectic medical schools also. A few exclusively women's medical colleges were located in the east. At one time or another there existed in the state of Iowa nine medical schools, two of which were in Keokuk, two in Iowa City, three in Des Moines, and one in Sioux City, and it seems to the writer that the other one was in Council Bluffs. Of these colleges, two were eclectic and one was homeopathic.

Hospitals were still very few and were located almost exclusively in the largest cities. Most of these hospitals were not available for clinical instruction to the students. The people generally were prejudiced against hospitals and would not consent to go into them until the danger to life was very great. The delay resulted in a higher mortality rate than was necessary and confirmed the people's belief that entrance into a hospital meant almost certain death.

Physicians who engaged in teaching in the medical colleges were divisible into two groups: those of the smaller group looked upon it as an ethical way of advertising their skill and ability, while those of the larger group valued the stimulus to increase their own knowledge afforded them by the contact with eager young students and the continuous challenge of the healthily critical mind of youth.

I have before me a report of the third annual commencement exercises of the Iowa College of Physicians and Surgeons. They were conducted in the English Lutheran Church, March 5, 1885, and Dr. J. A. Blanchard, dean of the faculty, delivered a short address to the students and graduates. He reviewed the history of medical education, its progress and literature, and called attention to the great advancement being made in all departments in recent years, especially in our country. He noted that "there are now sixty-two recognized regular medical colleges which are in good standing, besides numerous irregular and sub-standard schools styling themselves medical colleges."<sup>9</sup> In his final charge to the graduating class he urged: "You should engage in constant study of the science and practice of the art of medicine, which is the only way in which to become what society has a right to expect of you, that you be intelligent and successful practition-

ers. Our profession is a jealous one, requiring one's whole time, and will not bear mixing or diluting with any other calling or business."<sup>9</sup> Dr. D. W. Crouse, of Waterloo, Iowa, delivered a splendid commencement address, after which the faculty, graduates and their friends were hospitably entertained at the home of Dr. James T. Priestley.

At the beginning of the school year 1886-1887 the Iowa College of Physicians and Surgeons became affiliated with Drake University; but this affiliation was at first merely nominal. Had it not been for the energy and persistence of Dr. Lewis Schooler, who had in the meantime succeeded Dr. Blanchard as dean of the medical college, the school could not have survived. The college was now able to pay rentals and other expenses from the student fees. It was in good standing with the Iowa State Board and the other State Boards, and also with all of the recognized colleges. The faculty members rendered their services gratis, not one of them received anything for his work. At this time the following men constituted the teaching staff of the college: Drs. J. F. Kennedy, A.M., emeritus professor of obstetrics; D. S. Fairchild, medicine and pathology; A. C. Simon-ton, principles and practice of surgery; H. Landis Getz, obstetrics; Lewis Schooler, dean of the college, anatomy; W. W. Hale, materia medica; H. B. Page, physiology and hygiene; Robert Stephenson, gynecology; E. Lawrence, chemistry and toxicology; E. H. Hazen, eye and ear; F. E. Cruttenden, nose and throat and clinical ophthalmology; Robert McNutt, psychologic medicine; Hon. J. Mitchell, medical jurisprudence; E. C. Cherrie, demonstrator of anatomy; Woods Hutchinson, hygiene; A. J. Crawford, orthopaedics; and W. H. S. Mathews, dissecting.<sup>10</sup>

According to the catalogue, the students were to receive full didactic and laboratory courses in the practical and basic sciences, and they were permitted to take, without extra charge, the courses in botany and pharmacy, offered by the pharmacy department.

(To be continued next month)

#### REFERENCES

1. History of Medical Education in Iowa. Vol. I, p. 96.
2. Stange, C. H.: History of the Veterinary Medical Department of Iowa State College.
3. The writer was graduated in the year 1887 and was a member of the first class to be registered. His registration number is six.
4. Blanchard, John A.: History of Drake University.
5. Fairchild, David S.: History of Iowa College of Physicians and Surgeons, p. 96.
6. *Vis Medicatrix*, p. 50, June, 1891.
7. Fairchild, David S.: History of Medicine in Iowa, Vol. I, p. 94.
8. *Ibid.*, p. 94.
9. Iowa State Medical Reporter, p. 106, Vol. II, 1885.
10. Catalogue of Iowa College of Physicians and Surgeons, 1886-1887.



# THE JOURNAL BOOK SHELF

## BOOKS RECEIVED

- DISEASES OF WOMEN**—By Harry S. Crossen, M.D., professor emeritus of clinical gynecology, Washington University School of Medicine; and Robert J. Crossen, M.D., instructor in clinical gynecology and obstetrics, Washington University School of Medicine. Eighth edition, entirely reset, with 1058 engravings. C. V. Mosby Company, St. Louis, 1935. Price, \$10.00.
- THE EVALUATION OF SYMPTOMS**—By Oliver T. Osborne, M.D., professor of therapeutics, emeritus, and formerly clinical professor of medicine, Yale University. Yale University Press, 1935. Price, \$3.50.
- FOR AND AGAINST DOCTORS**—By Robert Hutchison, and G. M. Wauchope. William Wood and Company, Baltimore, 1935. Price, \$2.00.
- THE HUMAN FOOT**—By Dudley J. Morton, associate professor of anatomy, College of Physicians and Surgeons, Columbia University. Columbia University Press, New York City, 1935. Price, \$3.00.
- IMMUNOLOGY**—By Noble Pierce Sherwood, M.D., professor of bacteriology, University of Kansas. Illustrated. C. V. Mosby Company, St. Louis, 1935. Price, \$6.00.
- INFANT NUTRITION**—By William McKim Marriott, M.D., professor of pediatrics, Washington University School of Medicine, St. Louis. Second edition. C. V. Mosby Company, St. Louis, 1935. Price, \$4.50.
- INTERNATIONAL CLINICS, Volume IV, Forty-fifth Series**—Edited by Louis Hamman, M.D., visiting physician, Johns Hopkins Hospital, Baltimore. J. B. Lippincott Company, Philadelphia, 1935.
- MEDICAL TREATMENT OF GALLBLADDER DISEASE**—By Martin E. Rehfuess, M.D., clinical professor of medicine, Jefferson Medical College; and Guy M. Nelson, M.D., instructor of medicine, Jefferson Medical College. 465 pages with 113 illustrations. W. B. Saunders Company, Philadelphia and London, 1935. Price, \$5.50.
- THE NATIONAL FORMULARY**—Sixth edition prepared by the Committee on National Formulary by authority of the American Pharmaceutical Association. Official from June 1, 1936. Published by the American Pharmaceutical Association, Washington, D. C., 1935.
- NEW PATHWAYS FOR CHILDREN WITH CEREBRAL PALSY**—By Gladys Gage Rogers, and Leah C. Thomas. The Macmillan Company, New York City, 1935. Price, \$2.50.
- NURSERY EDUCATION—THEORY AND PRACTICE**—By William E. Blatz, M.A., M.B., Ph.D., professor of psychology, University of Toronto, director, St. George's School for Child Study. William Morrow and Company, New York, 1935. Price, \$3.50.
- THE PARATHYROIDS IN HEALTH AND IN DISEASE**—By David H. Shelling, M.D., Johns Hopkins University and Hospital. Illustrated. C. V. Mosby Company, St. Louis, 1935. Price, \$5.00.
- PRESCRIPTION WRITING AND FORMULARY**—By Charles Solomon, M.D., assistant clinical professor of medicine, Long Island College of Medicine. J. B. Lippincott Company, Philadelphia, 1935. Price, \$4.00.
- THE SPECIAL PROCEDURES IN DIAGNOSIS AND TREATMENT**—By Don Carlos Hines, M.D., clinical instructor in medicine, Stanford University. Published by the Stanford University Press.
- SURGERY: QUEEN OF THE ARTS**—By William D. Haggard, M.D., professor of clinical surgery, Vanderbilt University School of Medicine, 389 pages with 41 illustrations. W. B. Saunders Company, Philadelphia and London, 1935. Price, \$5.50.

## BOOK REVIEWS

### PHYSIOLOGY IN MODERN MEDICINE

By J. R. Macleod, M.D., regius professor of physiology, University of Aberdeen, Scotland. Seventh edition, with 297 illustrations and seven colored plates. C. V. Mosby Company, St. Louis, 1935. Price, \$8.50.

In this, the seventh edition of a well-established work, the authors have digressed somewhat from the plan of the earlier editions, in that they have omitted from discussions, biochemistry, as such. This departure was demanded because of the more prominent position created in biochemistry by modern advancement and discovery. In the present work, the authors discuss the minute physiology of the body, taking up the physiology of the cells, of the blood and lymph, and in later sections of the book, special physiology by system. This reorganization of the text has required the rewriting of many chapters, and in every instance the material has been brought entirely up to date.

The bibliography has been moved from the end of the section to the conclusion of the book, where the title of each article or monograph is presented in full, together with the proper identification of its source. Long recognized and accepted as outstanding and authoritative in this fundamental science, the present revision fully maintains the high standards set in previous editions.

### THE 1935 YEAR BOOK OF GENERAL MEDICINE

Edited by George F. Dick, M.D., Lawra-son Brown, M.D., George R. Minot, M.D., William B. Castle, M.D., William D. Stroud, M.D., and George B. Eusterman, M.D. The Year Book Publishers, Chicago, 1935. Price, \$3.00.

The 1935 Year Book of General Medicine is fully on a par with its distinguished line of predecessors. The articles on arthritis which have been reviewed are typical of the present unsatisfactory condition of our knowledge in this phase of medicine. The reviewer is also impressed with the articles dealing with the various treatments for acute anterior poliomyelitis.

Brown's review of diseases of the chest includes articles on the common cold and allergy, and articles on lung abscesses and their treatment, in addition to the general review of articles dealing with the various aspects of tuberculosis of the lungs. Perhaps too many rather than too few articles have been reviewed in the part dealing with diseases of the blood and the blood-forming organs. The section dealing with the heart and blood vessels is very complete, and as well reviewed as in former editions. In this section, too, articles having nothing new may perhaps have been given too much space. In the section on the digestive system and metabolism, several very interesting articles dealing with new

phases of gastro-enterologic manifestations of disease have been reviewed. Particularly the article dealing with localization of pain accompanying parasympathetic excitation of the stomach and duodenum in healthy individuals, by Boyden and Rigler, is very illuminating.

On the whole, the Year Book continues to live up to its former reputation by furnishing the clinician selected reviews of important phases of general medicine.

D. J. G.

#### THE TREATMENT OF DIABETES MELLITUS

By Elliott P. Joslin, M.D., Fifth Edition, revised and rewritten. Octavo, 620 pages, illustrated. Lea & Febiger, Philadelphia, 1935. Price, \$6.00.

With a rich clinical experience, extending over more than three score years, the author of this volume enriches medical literature with his careful observations and mature judgment. Dr. Joslin estimates that there are some five hundred thousand recognized diabetics in this country today and indicates that the problem of their management rests not with the specialist, but with the general practitioner in most instances. With this viewpoint, he has written with fullness and understanding so that the general practitioner who will read and study may render an acceptable service to his diabetic patients. No phase of the subject is ignored or slighted. It is the reviewer's opinion that the physician who would know this disease and its treatment should begin on page one and read without interruption the entire text. For the more advanced student of the subject, the volume will serve as a reference guide.

Collaborating with Dr. Joslin are observers with special knowledge of diabetic surgery, of circulatory conditions, of pediatric problems, and finally food and dietary conditions so important in the treatment of this disease. Outstanding by every standard of comparison the volume is recommended without reservation.

#### FOOD AND BEVERAGE ANALYSES

By Milton Arlanden Bridges, M.D., assistant clinical professor of medicine and lecturer in therapeutics, New York Postgraduate Medical School. Octavo, 248 pages, limp binding. Lea & Febiger, Philadelphia, 1935. Price, \$3.50.

This volume is outstanding and unique in its particular field and is without doubt the most complete work on this subject in the English language today. Over 3,200 analyses of nutritive values are presented; over 400 iodine analyses, 350 analyses of vitamins, and the analyses of over 500 foods for their constituents of calcium, phosphorus, iron, copper, manganese, chlorides and salt are included. The ever-increasing use by the public of canned and packaged food has created a need for dietetic recognition of these products. Heretofore the only analyses

available have been those furnished by the manufacturers. In this volume complete analyses of these foods are presented, both in portion and volume amounts. In the closing chapter of the volume, the alcoholic and caloric values of various beverages are given in detail and determined not by the claims of the manufacturers, but by actual chemical analyses of the products. The volume is fully indexed and contains adequate bibliographies. This book should find a place in every hospital library and will be invaluable for the students of nutrition and home economics, as well as the physician or interne who must daily meet dietetic problems.

#### A TEXTBOOK OF BACTERIOLOGY

By Thurman B. Rice, M.D., professor of bacteriology and public health, Indiana University School of Medicine. Octavo, 551 pages with 121 illustrations. W. B. Saunders Company, Philadelphia and London, 1935. Price, \$5.00.

To supply a demand for a shorter concise textbook of bacteriology this author has prepared this volume. He has reduced to a minimum the discussion of cultural characteristics, and to a less extent, laboratory technic. Controversial or theoretical considerations have been omitted. The text has been organized otherwise along conventional lines, and covers the entire field in a satisfactory manner.

We feel that the author should be commended upon his preparation of this textbook, inasmuch as his careful sifting of the essential information for the student and the general practitioner has resulted in a text adequate for both purposes, yet concise and clear. The practicing physician who would review this subject, or the one who wishes to bring his information entirely up to date, will welcome this volume.

#### SURGICAL CLINICS OF NORTH AMERICA

Volume xv, No. 3, Chicago Number. W. B. Saunders Company, Philadelphia and London, 1935. Price, paper \$12.00; cloth, \$16.00.

This, the Chicago number of The Surgical Clinics of North America, presents a valuable symposium on fractures, consisting of nine clinics on this subject. Other papers treat head injuries, examination of the back, surgical aspects of backache, and the management of congenital talipes equinovarus. Besides these orthopedic papers, eight other clinical discussions are presented covering a wide range of surgical subjects. Of particular interest to the general surgeon is a discussion by Dr. Arthur Dean Bevan on the treatment of peritonitis. This paper will go far toward clarifying the confusion which has existed among surgeons during the past few years concerning the treatment of this rather common condition. The volume maintains the high standard established by previous numbers.



### THE KIDNEY IN HEALTH AND DISEASE

Edited by Hilding Berglund, M.D., Stockholm, Sweden; and Grace Medes, Ph.D., research biochemist, Lankenau Hospital Research Institute, Philadelphia. Octavo of 774 pages, illustrated with 163 engravings. Lea & Febiger, Philadelphia, 1935. Price, \$10.00.

All phases of kidney anatomy and physiology in health and disease are dealt with in this comprehensive book. It includes a detailed exposition of all the various theories of kidney function; the clinical aspects of renal function and renal insufficiency; a survey of the biologic and chemical factors in stone formation; careful elucidation of the pathology of the more frequent nephropathies; and excellent chapters on infections of the kidney, on congenital renal anomalies, on all phases of the experimental and clinical aspects of Bright's disease in its various manifestations.

It is difficult to single out any particular chapter as superior; the topics are all equally well presented. To the reviewer, outstanding chapters were those on the pathology of the principal nephropathies by Bell; on renal insufficiency by Volhard; on renal counterbalance by Hinman; on infections of the kidney by Hobart Reimann; on urine formation in the amphibian kidney by A. N. Richards; and on the phenolsulphonphthalein and other tests of renal function, by Rowntree.

This volume can truly be said to be one for use mainly as a reference work. It meets the requirements of everyone interested in the subject, whether he is physiologist, anatomist, biochemist, general practitioner, internist, or urologist. The contributors are workers who rank high in their respective fields and are recognized as authorities. A. G. F.

### INSTRUCTIONS TO PHYSICIANS AND HOSPITALS

For submitting charges in federal injury cases. By C. B. Riddle, formerly a supervising auditor, U. S. Employees' Compensation Commission. Published by the author, P. O. Box 442, Washington, D. C. Price, \$1.00.

The author of these instructions was formerly a supervising auditor in the United States Employees' Compensation Commission, and as such had occasion to review many thousand bills submitted by physicians and hospitals for federal injury cases. From this experience he was able to tabulate the ordinary causes for inaccuracies and delays due to the failure of the hospital or physician to comply with the regulations governing these payments as supplied by the government in a sixty page manual. With this background, he has condensed and compiled in four pages full details for the preparation of accounts, which, in his opinion, will minimize errors and facilitate the payment of accounts by the government.

The author does not claim originality for his work—in fact, he indicates that it is taken directly from the government manual.

The price of one dollar for this booklet would appear excessive. However, the physician or hospital having frequently dealings with these cases would no doubt gladly pay this sum to eliminate delay in the settlement of their statements.

### DISEASES OF THE SKIN

By Frank Crozer Knowles, M.D., professor of dermatology, Jefferson Medical College. Third edition, enlarged and thoroughly revised. Octavo, 640 pages, illustrated with 240 engravings. Lea & Febiger, Philadelphia, 1935. Price, \$6.50.

The newer advances made in the field of dermatology have demanded extensive revisions and re-writing of this text so that this, the third edition, is in a very large measure an entirely new work. Approximately fifty pages have been added to the text, and forty-five new photographs included.

The discussion of allergy and allergic reactions is extensive, and the section on the treatment of syphilis has been reorganized and expanded. New sections have been added covering the anatomy and physiology of the skin. While less than encyclopedic in scope, the volume covers all the usual and most of the rare skin conditions, and should prove a useful guide, both for the student and the general practitioner.

### THE 1935 YEAR BOOK OF RADIOLOGY

Diagnosis edited by Charles A. Waters, M.D., associate in roentgenology, Johns Hopkins University; Therapeutics edited by Ira I. Kaplan, M.D., Clinical Professor of Surgery, New York University Medical College. The Year Book Publishers, Chicago, 1935. Price, \$4.50.

Part I of this volume discusses radiologic diagnosis, while Part II discusses radiotherapeutics. In the first section the advances and discoveries in the field of radiologic diagnosis for the year 1934 are reviewed by systems. Citations are made to readily available literature and each article presents a condensation of an outstanding contribution.

As might be expected in Part II, dealing with radiotherapeutics, the treatment of malignancies commands major attention. The chemistry of cancer and cancer diagnosis, as reviewed by the authors, constitutes a very valuable and fundamental study for an appreciation of this subject.

Easily the most outstanding of all reviews of this sort in radiologic literature the volume should be accessible to every physician engaged in radiologic work, particularly those devoting less than full attention to the subject and whose diverse interests may prevent a thorough and systematic reading of the literature in this field.







Thomas A. Burcham, M.D.

President

Iowa State Medical Society

1935-1936



# The JOURNAL

of the

## Iowa State Medical Society

VOL. XXVI

DES MOINES, IOWA, APRIL, 1936

No. 4

IOWA STATE MEDICAL SOCIETY

Organized in 1830

### Eighty-fifth Annual Session

Des Moines, Iowa, April 29, 30 and May 1, 1936

Do not fail to Register. Registration Bureau—Hotel Savery

#### PROGRAM

Wednesday, April 29

9:00 a. m.

Ball Room

Opening Exercises—

9:00-9:30

Call to Order—

THOMAS A. BURCHAM, M.D., President

Greetings—

CLIFFORD W. LOSH, M.D., President, Des Moines  
Academy of Medicine and Polk County Medical Society

Response—

RAYMOND E. PECK, M.D., Davenport,  
Second Vice President

Symposium on Intracranial Lesions—

9:30-11:30

The Clinical Manifestations of Intracranial Lesions—

WILLIAM E. ASH, M.D., Council Bluffs

Certain Aspects and Fundamentals of Intracranial Surgery—

O. R. HYNDMAN, M.D., Iowa City

The Value of the Roentgenologic Examination in Intracranial Disease—

JOHN D. CAMP, M.D., Assistant Professor of Radiology, Mayo Foundation, University of Minnesota, Rochester, Minnesota

Intra-ocular Changes Associated with Intracranial Lesions—

CECIL S. O'BRIEN, M.D., Iowa City

Presidential Address—

THOMAS A. BURCHAM, M.D., Des Moines 11:30-12:00

Eye, Ear, Nose and Throat Section

Bronchoscopic Clinic—Methodist Hospital—

JAMES A. DOWNING, M.D., Des Moines 8:00-9:00

Thursday, April 30

8:30 a. m.

Ball Room

Essential Hypertension and Medical Clinic—

S. MARX WHITE, M.D. 8:30-9:30  
Professor of Medicine, University of Minnesota Medical School, Minneapolis

Breast Tumors and Surgical Clinic—

W. WAYNE BABCOCK, M.D. 9:30-10:30  
Professor of Surgery and Clinical Surgery, Temple University School of Medicine, Philadelphia

Modern Conception of Irradiation Therapy in Malignancy—

ARTHUR C. CHRISTIE, M.D. 10:30-11:30  
Professor of Clinical Radiology, Georgetown University Medical School, Washington, D. C.

Diseases of the Petrous Portion of the Temporal Bone from the Standpoint of the General Medical Man, the Neurologist, and the Otologist—

SAMUEL J. KOPETZKY, M.D. 11:00-11:30  
Professor of Otology, Polyclinic Medical School, New York City, Guest, Eye, Ear, Nose and Throat Section

Feeding Cases—

PHILIP C. JEANS, M.D., Iowa City 11:30-12:00  
Discussor MARTIN D. OTT, M.D., Davenport



# Sectional Conferences

## Wednesday Afternoon, April 29

MEDICAL SECTION		SURGICAL SECTION		EYE, EAR, NOSE AND THROAT SECTION	
Benjamin F. Wolverton, M.D., Chairman MAIN BALLROOM		Earl B. Bush, M.D., Chairman FLORENTINE ROOM		Cecil C. Jones, M.D., Chairman CLUB ROOM	
Meningococcic Meningitis— JAMES E. DYSON, M.D., Des Moines Discussor— FREDERICK H. LAMB, M.D., Davenport	1:30	Acute Intestinal Obstruction E. BURTON HOWELL, M.D., Ottumwa Discussor— CHARLES S. KRAUSE, M.D., Cedar Rapids	1:30	Bacteriologic Differentiation of the More Common Forms of Conjunctivitis— PHILLIPS THYGESON, M.D., Iowa City Discussor— ELMER P. WEIH, M.D., Clinton	1:30
	2:00	Three Steps to Heart Failure— ELMER E. KOTYKE, M.D., Des Moines Discussor— LAURENCE E. COOLEY, M.D., Dubuque	2:00	The Refinements of Refraction— FRANK W. DEAN, M.D., Council Bluffs Discussor— WILLIAM F. BOILER, M.D., Iowa City	2:15
Diagnosis and Treatment of Simmonds' Disease— JAMES A. GREENE, M.D., Iowa City Discussor— ROBERT N. LARIMER, M.D., Sioux City	2:30	Gastro-enterostomy with Peptic Ulcers— CARL J. LOHMANN, M.D., Burlington Discussor— PAUL A. WHITE, M.D., Davenport	2:30	Orthoptic Exercises, Their Indications and Results— RALPH E. RUSSELL, M.D., Waterloo Discussor— JAMES H. ALLEN, M.D., Iowa City	3:00
Rocky Mountain Fever: Report of Two Cases— FRED MONTZ, M.D., Lowden Discussor— CARL F. JORDAN, M.D., Des Moines	3:00	Fractures of the Vertebrae— VERL A. RUTH, M.D., Des Moines Discussor— KARL R. WERNDORFF, M.D., Council Bluffs	3:00	Intra-ocular Lesions Associated with Pregnancy and Their Prognostic Significance— D. O. BOVENMEYER, M.D., Ottumwa Discussor— HENRY A. BENDER, M.D., Waterloo	3:45
Allergic Manifestations as Seen in General Practice— ELMER G. SENTRY, M.D., Davenport Discussor— LEE R. WOODWARD, M.D., Mason City	3:30	Fractures About the Knee Joint— DOUGLAS N. GIBSON, M.D., Des Moines Discussor— ARCH F. O'DONOGHUE, M.D., Sioux City	3:30		
Methods of Diagnosis and Treatment in Allergic Disease— JULIA COLE, M.D., Iowa City Discussor— DANIEL J. GLOWSET, M.D., Des Moines	4:00	Fractures of the Lower Leg— BURTON R. WESTON, M.D., Mason City Discussor— FRED L. KNOWLES, M.D., Fort Dodge	4:00		

Sectional Conferences  
Thursday Afternoon, April 30

MEDICAL SECTION		SURGICAL SECTION		EYE, EAR, NOSE AND THROAT SECTION	
Benjamin F. Wolverton, M.D., Chairman MAIN BALLROOM		Earl B. Bush, M.D., Chairman FLORENTINE ROOM		Cecil C. Jones, M.D., Chairman CLUB ROOM	
Roentgenologic Diagnosis of Tumors of the Thorax— 1:30 DAVID M. EARL, M.D., Iowa City Discussor— JAMES V. PROUTY, M.D., Cedar Rapids		Symposium on the Prostate Gland: 1:30-3:00 Diagnosis— GERALD V. CAUGHLAN, M.D., Council Bluffs Operative Technic— WILLIAM L. DONNELLY, M.D., Davenport Postoperative Treatment, Sequelae and Statistics— CLIFFORD W. LOSH, M.D., Des Moines Discussors— JULIAN M. BRUNER, M.D., Des Moines LAWRENCE E. PIERSON, M.D., Sioux City		Applied Anatomy of Deep Suppurations of the Neck— 1:30 EUGENE W. SCHELDROP, M.D., Iowa City Discussor— GORDON F. HARKNESS, M.D., Davenport	
X-ray Calcified Valve Leaflets in a Patient with Aortic Stenosis: Case Report— 2:00 GUY R. MCCUTCHAN, M.D., Council Bluffs Discussor— JAMES F. EDWARDS, M.D., Ames		Uterine Carcinoma— 3:00 HOWARD D. GRAY, M.D., Des Moines Discussor— LAFE H. FRITZ, M.D., Dubuque		Chronic Mastoiditis and Its Therapy— 2:15 SAMUEL J. KOPETZKY, M.D., New York City Discussor— DEAN M. LIERLE, M.D., Iowa City	
Modern Trends in Psychoneurosis— 2:30 WILLIAM MALAMUD, M.D., Iowa City Discussor— RUSSELL C. DOOLITTLE, M.D., Des Moines		Obstetric Operative Procedures— 3:30 WM. E. BROWN, M.D., Cedar Rapids Discussor— EVERETT D. PLASS, M.D., Iowa City		Systemic Management of Children with Acute Infections of the Ear, Nose and Throat— 3:15 DENNIS H. KELLY, M.D., Des Moines Discussor— JACK V. TREYNOR, M.D., Council Bluffs	
Roentgenologic Changes in Malacic Diseases of the Bone— 3:00 JOHN D. CAMP, M.D., Rochester, Minnesota		Methods of Protecting the Perineum During Labor and Repairing of the Perineum and Lacerations— 4:00 ROY E. CROWDER, M.D., Sioux City Discussor— LESTER C. KERN, M.D., Waverly		Speech Defects, Their Cause and Management— 4:15 WENDELL JOHNSON, Ph.D., Iowa City Discussor— HARRY H. LAMB, M.D., Davenport	
Hypertonic Glucose Therapy in Cardio-vascular Diseases— 3:30 MILO G. MEYER, M.D., Marshalltown Discussor— F. N. COLE, M.D., Iowa Falls		The Full Frequency Audiometer— JAMES E. REEDER, M.D., Sioux City Discussor— FRANK L. SECOV, M.D., Sioux City			
Education of the Diabetic (Movies) 4:00 RAYMOND M. RICE, M.D., Council Bluffs					



Wednesday Evening, April 29

8:00 p. m.

Main Ball Room—Hotel Savery

Smoker

MEDICAL MINSTRELS OF 1936

Presenting

"The Social Security Act"

Thursday Evening, April 30

ANNUAL BANQUET

Main Ball Room—Hotel Savery

6:30 p. m.

Toastmaster—

JAMES C. HILL, M.D., Newton

President's Address—

THOMAS A. BURCHAM, M.D., Des Moines

Address by the President-Elect—

PRINCE E. SAWYER, M.D., Sioux City

Address—

MOST REV. GERALD T. BERGAN, D.D., Bishop of Des Moines

Music—Dancing—Bridge

Friday, May 1

9:00 a. m.

Main Ball Room

Anesthesia—

W. WAYNE BABCOCK, M.D., Philadelphia, 9:00-10:00

Paroxysmal Cardiology and Medical Clinic—

S. MARX WHITE, M.D., Minneapolis 10:00-11:00

Medical Economics—

ARTHUR C. CHRISTIE, M.D., Washington, D. C., 11:00-11:30

Medical Organization—

OLIN A. WEST, M.D., Secretary 11:30-12:00  
American Medical Association, Chicago

Friday, May 1

3:00 p. m.

Main Ball Room

Report of House of Delegates—

Installation of President—

State Society  
of  
Iowa Medical Women

Thirty-ninth Annual Meeting

Wednesday, April 29, 1936

The Grace Ransom Tea Room

LUNCHEON AND BUSINESS MEETING

12:20 p. m.

DINNER

6:30 p. m.

The Grace Ransom Tea Room

PROGRAM

President's Address—

CORA WILLIAMS-CHOATE, M.D., Marshalltown 7:30

The Woman Physician in a Changing World—

FLORENCE BROWN SHERBORNE, M.D. 7:40  
Dept. of Home Economics, University of Kansas.

Recognition of Life Members—

9:10

Who's Who—One Minute Talks—

9:45

Presentation of New Officers and Adjournment—

Business Meeting of Branch 19, Medical Woman's  
National Association—

SARA BLAINE KALAR, M.D., President,  
Dept. of Home Economics, Iowa State College

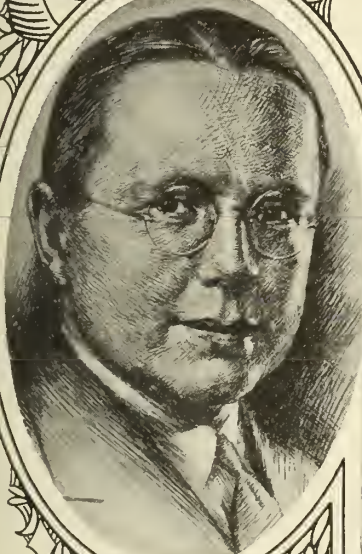
To our friends, the men physicians of the Iowa State  
Medical Society, we extend a cordial invitation to  
be present.

OFFICERS

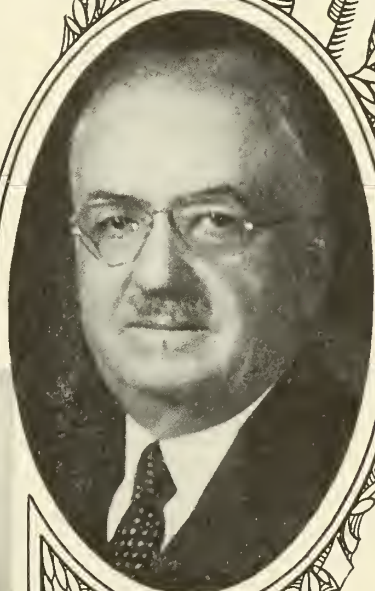
President.....CORA WILLIAMS-CHOATE, M.D., Marshalltown  
Vice President.....NELLE NOBLE, M.D., Des Moines  
Secretary.....GAIL McCCLURE, M.D., Bussey\*  
Treasurer.....JEANNETTE DEAN-THROCKMORTON, Des Moines

\* Dr. McClure is now at Lawrence, Kansas.

# Our Guests



W. WAYNE BABCOCK, M.D.  
Philadelphia



S. MARX WHITE, M.D.  
Minneapolis



SAMUEL J. KOPETZKY, M.D.  
New York City



ARTHUR C. CHRISTIE, M.D.  
Washington, D. C.



JOHN D. CAMP, M.D.  
Rochester



HOUSE OF DELEGATES

West Shrine Room  
Wednesday, April 29  
3:30 p. m.

Roll Call  
Approval of Minutes of Friday Morning Session, 1935  
Report of Secretary  
Report of Treasurer  
Report of Board of Trustees  
Report of Council  
Report of the Delegates to the American Medical Association  
Reports of Standing Committees of the House of Delegates:  
Committee on Constitution and By-Laws—  
WALTER R. BROCK, Sheldon, Chairman  
Committee on Finance—  
ERNEST C. MCCLURE, Bussey, Chairman  
Committee on Medical Economics—  
THOMAS F. THORNTON, Waterloo, Chairman  
Committee on Medical Education and Hospitals—  
ARTHUR W. ERSKINE, Cedar Rapids, Chairman  
Medico-Legal Committee—  
FRANK A. ELY, Des Moines, Chairman  
Committee on Necrology—  
C. W. ELLYSON, Waterloo, Secretary  
Committee on Publication—  
RALPH R. SIMMONS, Des Moines, Editor  
Committee on Public Policy and Legislation—  
FRED MOORE, Des Moines, Chairman

Reports of Special Committees of the House of Delegates:  
Baldridge Memorial Committee—  
E. M. MYERS, Boone, Chairman  
Committee on Child Health and Protection—  
R. H. McBRIDE, Sioux City, Chairman  
Historical Committee—  
WALTER L. BIERING, Des Moines, Chairman  
Medical Library Committee—  
JEANNETTE DEAN-THROCKMORTON, Des Moines, Librarian  
Committee on Military Affairs—  
ARNOLD L. JENSEN, Council Bluffs, Secretary  
Committee on Scientific Exhibits—  
F. P. McNAMARA, Dubuque, Chairman  
Woman's Auxiliary Advisory Committee—  
ALDIS A. JOHNSON, Council Bluffs, Chairman

Reports of Council Committees:  
Speakers Bureau Committee—  
DANIEL J. GLOMSET, Des Moines, Chairman  
Cancer Committee—  
F. P. McNAMARA, Dubuque, Chairman  
Committee on Professional Relations—  
E. J. WATSON, Diagonal, Chairman  
Committee on Public Relations—  
EVON WALKER, Ottumwa, Chairman

Memorials and Communications  
New Business  
Election of Committee on Nominations

Friday, May 1  
1:30 p. m.  
Main Ball Room

Roll Call  
Reading of Minutes  
Report of Committee on Nominations  
Election of Officers  
Reports of Committees  
Unfinished Business  
New Business  
Adjournment

ENTERTAINMENT

Tuesday, April 28  
Afternoon  
Golf and Country Club  
Pre-convention Golf Tournament

7:00 p. m.  
Golf and Country Club  
Dinner  
Cards and Other Entertainment in the Evening

Wednesday, April 29  
8:00 p. m.  
Stag and Smoker  
Hotel Savery  
6:30 p. m.  
State Society of Iowa Medical Women  
Banquet and Program  
Grace Ransom Tea Room

6:30 p. m.  
Woman's Auxiliary Banquet, Hotel Fort Des Moines  
Debate

8:00 p. m.  
Bridge Party  
Woman's Auxiliary and Visiting Women  
Hotel Fort Des Moines

Thursday, April 30  
12:30 p. m.  
Auxiliary Luncheon, Hotel Fort Des Moines  
All Visiting Ladies Invited

6:30 p. m.  
Annual Banquet, Ball Room, Hotel Savery  
Physicians, Their Wives and Guests

Arrangements Committee

THOMAS A. BURCHAM.....Des Moines  
ROBERT L. PARKER.....Des Moines  
HAROLD J. MCCOY.....Des Moines  
N. BOYD ANDERSON.....Des Moines  
DOUGLAS N. GIBSON.....Des Moines

Local Committees

Clinic Committee—  
HARRY A. COLLINS.....Medical  
FRANK W. FORDYCE.....Surgical  
CECIL C. JONES.....Eye, Ear, Nose and Throat  
Entertainment Committee—  
WALTER D. ABBOTT, Chairman DOUGLAS N. GIBSON  
FRANK W. FORDYCE CHARLES RYAN  
LEONARD A. WEST

# HEADQUARTERS



HOTEL SAVERY

## MEETING PLACES

Headquarters—Hotel Savery  
 General Meetings—Main Ball Room, Hotel Savery  
 Medical Section—Main Ball Room, Hotel Savery  
 Surgical Section—Florentine Room, Hotel Savery  
 Eye, Ear, Nose and Throat Section—Club Room, Hotel Savery  
 House of Delegates—Wednesday: West Shrine Room  
 Friday: Main Ball Room  
 Registration and Commercial Exhibits—Mezzanine Floor, Hotel Savery  
 Scientific Exhibits—Lounge and Assembly Room, Hotel Savery  
 Headquarters for State Society of Iowa Medical Women, Grace Ransom Tea Room  
 Headquarters for Woman's Auxiliary, Hotel Fort Des Moines

## SPECIAL MEETINGS

Iowa Alumni Association Luncheon  
 Wednesday, April 29  
 Florentine Room, Hotel Savery, 12:15 p. m.

Military Surgeon's Dinner  
 Wednesday, April 29  
 Florentine Room, Hotel Savery, 6:00 p. m.

Eye, Ear, Nose and Throat Section  
 Thursday, April 30  
 Complimentary Luncheon by Cecil C. Jones, M.D.

Iowa Pediatric Club Dinner  
 Wednesday, April 29  
 Des Moines Club, 6:15 p. m.

County Secretaries Conference Luncheon  
 Friday, May 1  
 Florentine Room, Hotel Savery, 12:15 p. m.

## Section Chairmen and Reporters

### Section on Medicine—

Chairman, BENJAMIN F. WOLVERTON, M.D., Cedar Rapids

### Section on Surgery—

Chairman, EARL B. BUSH, M.D., Ames

### Section on Ophthalmology, Otology and Rhinolaryngology—

Chairman, CECIL C. JONES, M.D., Des Moines

### Reporter, General Sessions, Eye, Ear, Nose and Throat Section and House of Delegates—

MASTER REPORTING COMPANY, Chicago

## Rules for Papers and Discussions

For the general session meetings, no address or paper, except those of the President and the Guests, shall occupy more than twenty minutes in its delivery; and no member shall speak longer than five minutes nor more than once on any subject in discussing a paper. All papers read before the Society shall be the property of the Society. Each paper should be deposited with the Secretary when read; if this is not done, it will not be published.

In most of the sectional meetings, the talks are twenty minutes in length. Discussions may not be longer than five minutes. A typewritten copy of each talk should be left with the chairman of the section so that it can be published in the Journal.

## Registration

Do not fail to register.

Please bring your membership card for presentation at the registration desk.

Women attending the meeting are urged to register at the registration desk for the Woman's Auxiliary at the Hotel Fort Des Moines.



## IOWA STATE MEDICAL SOCIETY OFFICERS AND COMMITTEES 1935-1936

President.....Thomas A. Burcham, Des Moines  
 President-Elect.....Prince E. Sawyer, Sioux City  
 First Vice President.....James C. Hill, Newton  
 Second Vice President.....Raymond E. Peck, Davenport  
 Secretary.....Robert L. Parker, Des Moines  
 Treasurer.....Harold J. McCoy, Des Moines

## COUNCILORS

First District—Felix A. Hennessy, Calmar, Chairman.....1937  
 Second District—Lee R. Woodward, Mason City.....1938  
 Third District—Frank P. Winkler, Sibley.....1939  
 Fourth District—James E. Reeder, Sioux City.....1940  
 Fifth District—William W. Pearson, Des Moines.....1936  
 Sixth District—Charles W. Ellyson, Waterloo.....1937  
 Seventh District—Arthur W. Erskine, Cedar Rapids.....1938  
 Eighth District—Clyde A. Boice, Washington.....1939  
 Ninth District—Harold A. Spilman, Ottumwa.....1940  
 Tenth District—James G. Macrae, Creston.....1936  
 Eleventh District—M. C. Hennessy, Council Bluffs.....1937

## TRUSTEES

Oliver J. Fay, Des Moines.....1937  
 John I. Marker, Davenport.....1936  
 Edward M. Myers, Boone.....1938

## DELEGATES TO A. M. A.

Fred Moore, Des Moines.....1937  
 T. F. Thornton, Waterloo.....1936  
 V. L. Treynor, Council Bluffs.....1936

## ALTERNATE DELEGATES TO A. M. A.

E. M. MacEwen, Iowa City.....1937  
 R. H. Lott, Carroll.....1936  
 F. P. McNamara, Dubuque.....1936

## EDITOR OF THE JOURNAL

Ralph R. Simmons.....Des Moines

## STANDING COMMITTEES OF THE HOUSE OF DELEGATES

## ARRANGEMENTS

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 Robert L. Parker.....Des Moines  
 Harold J. McCoy.....Des Moines

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 John H. Henkin.....Sioux City  
 W. A. Sternberg.....Mount Pleasant

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 Leslie L. Carr.....Clermont  
 A. S. Bowers.....Orient

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 James C. Hill.....Newton  
 James C. Donahue.....Centerville

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Arthur W. Erskine, Chairman.....Cedar Rapids  
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 B. J. Dierker.....Fort Madison

## MEDICO-LEGAL

Frank E. Ely, Des Moines, Chairman.....1938  
 George C. Albright, Iowa City.....1936  
 F. Earl Bellinger, Council Bluffs.....1937

## PUBLICATION COMMITTEE

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 Robert L. Parker, Secretary.....Des Moines  
 Oliver J. Fay, Trustee.....Des Moines  
 John I. Marker, Trustee.....Davenport  
 Edward M. Myers, Trustee.....Boone

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Fred Moore, Chairman.....Des Moines  
 R. D. Bernard.....Clarion  
 S. W. Corbin.....Millerton  
 Thomas A. Burcham.....Des Moines  
 Robert L. Parker.....Des Moines

## SCIENTIFIC WORK

Thomas A. Burcham.....Des Moines  
 Prince E. Sawyer.....Sioux City  
 Robert L. Parker.....Des Moines  
 Harold J. McCoy.....Des Moines

## SPECIAL COMMITTEES OF THE HOUSE OF DELEGATES

## BALDRIDGE MEMORIAL

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 Daniel J. Glomset.....Des Moines  
 E. D. Plass.....Iowa City

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 E. D. Plass.....Iowa City  
 H. E. Farnsworth.....Storm Lake  
 Lee F. Hill.....Des Moines  
 Howard A. Weis.....Davenport  
 C. P. Phillips.....Muscatine  
 Roland Stahr.....Fort Dodge

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Walter L. Bierring, Chairman.....Des Moines  
 Frank M. Fuller.....Keokuk  
 T. B. Throckmorton.....Des Moines  
 John T. McClintock.....Iowa City  
 Paul W. Van Metre.....Rockwell City  
 William Jepson.....Sioux City

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Con R. Harken, Chairman.....Osceola  
 Carl L. Gillies.....Iowa City  
 Jeannette Dean-Throckmorton.....Des Moines

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T. F. Suchomel, Chairman.....Cedar Rapids  
 Harold A. Spilman.....Ottumwa  
 Arnold L. Jensen.....Council Bluffs

## SCIENTIFIC EXHIBITS

F. P. McNamara, Chairman.....Dubuque  
 Frederick H. Lamb.....Davenport  
 Robert L. Parker.....Des Moines

## WOMAN'S AUXILIARY ADVISORY COMMITTEE

Aldis A. Johnson, Chairman.....Council Bluffs  
 Joseph H. Kinnaman.....Des Moines  
 Charles F. Snopek.....Cresco  
 W. T. Peters.....Burt  
 T. I. Wigim.....Muscatine

## COMMITTEES OF THE COUNCIL

## SPEAKERS BUREAU COMMITTEE

Daniel J. Glomset, Chairman.....Des Moines  
 L. R. Woodward.....Mason City  
 L. C. Kern.....Waverly  
 Harold L. Brereton.....Emmetsburg  
 Sydnor D. Maiden.....Council Bluffs  
 James E. Dunn.....Davenport

## COMMITTEE ON PROFESSIONAL RELATIONS

E. J. Watson, Chairman.....Diagonal  
 W. R. Brock.....Sheldon  
 Donald C. Conzett.....Dubuque

## COMMITTEE ON PUBLIC RELATIONS

Evon Walker, Chairman.....Ottumwa  
 Peirce D. Knott.....Sioux City  
 E. E. Shaw.....Indianola

# WOMAN'S AUXILIARY

## Iowa State Medical Society

Organized May 9, 1929, Des Moines, Iowa

Seventh Annual Meeting  
Registration Headquarters  
Hotel Fort Des Moines

### PROGRAM

Wednesday, April 29

10:00 a. m.

Green Room, Hotel Fort Des Moines

Preconvention Meeting

For Board of Directors and  
County Auxiliary Presidents

12:00 p. m.

Luncheon

For Board of Directors and  
County Auxiliary Presidents

2:15 p. m.

South Ball Room, Hotel Fort Des Moines

General Meeting

President, Mrs. M. C. Hennessy, presiding

Call to Order—

Invocation—

REV. DILLMAN SMITH, Chaplain,  
Iowa Methodist Hospital, Des Moines

Address of Welcome—

MRS. M. N. VOLDENG, Des Moines

Response—

MRS. S. D. MAIDEN, Council Bluffs,  
President, Woman's Auxiliary to the  
Pottawattamie County Medical Society

Announcements—

Local Arrangements Committee Chairman,  
MRS. TOM B. THROCKMORTON, Des Moines,  
President, Woman's Auxiliary to the Des  
Moines Academy of Medicine and the Polk  
County Medical Society

Rules for Convention

Reading of Minutes

Report of the President

Announcements of Committees

Reports of Auxiliary State Officers

Adjournment

6:30 p. m.

South Ball Room, Hotel Fort Des Moines  
Dinner

Debate on the Subject of Socialized Medicine  
by Drake University vs. Iowa State College

8:00 p. m.

Lounge, Hotel Fort Des Moines

Bridge

All visiting women as well as Auxiliary members  
are invited to attend

Thursday, April 30

10:00 a. m.

Green Room, Hotel Fort Des Moines

Reading of Minutes

Cancer Control—

F. L. RECTOR, M.D., Evanston, Illinois  
American Society for the Control of Cancer

Introduced by—

F. P. McNAMARA, M.D., Dubuque, Chairman,  
Cancer Committee, Iowa State Medical Society

Reports of Standing Committees

Reports of County Presidents

Adjournment

1:00 p. m.

Luncheon

Lounge, Hotel Fort Des Moines

Greetings—

PRINCE SAWYER, M.D., Sioux City,  
President-elect, Iowa State Medical Society

The Social Security Act—

THOMAS A. BURCHAM, M.D., Des Moines,  
President, Iowa State Medical Society

3:00 p. m.

Tour of the Smouse School for Physically  
Handicapped Children

6:30 p. m.

Banquet, Hotel Savery Ball Room  
Physicians, wives and guests

Friday, May 1

9:30 a. m.

Green Room, Hotel Fort Des Moines

General Meeting

Reading of Minutes

Report of Resolutions Committee

Election of Officers

Installation of Officers

Adjournment

Postconvention Meeting

This program, social and business, is for all visit-  
ing women. All eligible women are urged to become  
members.



## The New and Old in Conventions

The convention city for the 1936 meeting of the Iowa State Medical Society needs no description to our members. It is one which is familiar to all. However, there are many new features for the meeting this year. First of all, there will be a new headquarters, the Hotel Savery. All general meetings, sectional meetings, meetings of the House of Delegates, committee meetings, and entertainment functions will be held there. In addition to the Hotel Savery, accommodations will be available at any of the other hotels: Hotel Fort Des Moines, Kirkwood Hotel, Brown Hotel, Chamberlain Hotel, and Commodore Hotel.

The greatest innovation in the meeting arrangements is the Friday afternoon session which is being held for the first time this year. For years the Friday morning program of the general

county society secretaries are the guests of the State Society at this luncheon. The delegates and other officers will be welcome to attend because many of them will want to hear Dr. West's discussion.

The program itself this year represents a combination of the new and the old. For many years only one general meeting was held each morning and afternoon of the convention. Within the past few years the afternoons have been devoted to various section meetings. The sectional plan is being continued this year but has been reduced in number to three sections: medical, surgical and eye, ear, nose and throat. Comments are already reaching the office regarding the excellent set up of the program. Interesting subjects and outstanding speakers have been chosen.



Des Moines Golf and Country Club  
Headquarters, Annual Golf Tournament

session has been one of the most interesting and worthwhile sections of the entire meeting. Because of the meeting of the House of Delegates which has heretofore been held at the same time as the general session on Friday, the delegates were denied the opportunity of taking part in this excellent meeting. By having the Friday meeting of the House of Delegates in the afternoon, it will now be possible for the delegates and the officers to attend the program in the morning and still represent their societies at the last meeting of the House of Delegates.

Since Dr. Olin West, Secretary of the American Medical Association, is to be with us on Friday, May 1, the county society secretaries luncheon, which is usually held on Wednesday noon, will be scheduled for Friday noon this year. Dr. West will speak during the luncheon meeting on problems of the county medical societies. The

The pre-convention golf tournament, officially inaugurated last year, is on its way toward becoming an old established custom. Announcements regarding this year's tournament, which will be held Tuesday afternoon, at the Des Moines Golf and Country Club, are included elsewhere in this issue of the JOURNAL.

The local entertainment committee is on the lookout for all available talent for its up-to-the-minute presentation at the smoker of The Minstrels of 1936. Another evening of recreation and pleasure is planned for the evening of the banquet. After a short, interesting program, dancing, bridge and conversation will hold full sway.

The State Society of Iowa Medical Women has somewhat amplified its program this year to include a business meeting luncheon in addition to the usual banquet and program held the evening of the smoker. The guest speaker, Florence

Brown Sherbon, M.D., of the University of Kansas, will bring a message, thereby adding an interesting touch of the old with the new. Dr. Sherbon was president of the State Society of Medical Women at the time of its meeting in 1914. Another feature of the program is the initiation of a ceremony for the recognition of life members of their organization—those who have been affiliated with it for a period of twenty-five years or longer.

The Woman's Auxiliary has planned a full two and one-half day session, which combines business and entertainment not only for all auxiliary members but for all visiting women as well. A new and interesting highlight of this program is the Wednesday evening banquet, which will be followed by a debate between the students of Drake

Common Lesions of the Cervix Uteri and Their Treatment—Julian M. Bruner, M.D., Lee Rosebrook, M.D., and Geo. W. Cushman, A.C.L., Des Moines.

Series of photographs of various lesions of the cervix, with methods of treatment and end results. The technic of photography of the cervix will also be shown.

Exhibit of the Iowa Pharmaceutical Association.

A display of official pharmaceutical preparations which should be prescribed by Iowa physicians in place of the more expensive proprietary preparations.

Diagnosis and Treatment of Pulmonary Tuberculosis

—J. Carl Painter, M.D., Director, Sunnyerest Sanatorium, Dubuque.

An exhibit of roentgenograms in sequence showing the results of modern methods of treatment in pulmonary tuberculosis.



FLORENCE B. SHERBON, M.D.  
Lawrence, Kansas



University and Iowa State College on the subject. "Resolved: That the several states shall enact legislation providing for a system of complete medical service to be available to all citizens at public expense."

The Committee on Scientific Exhibits has arranged for an unusually worthwhile exhibit this year, among which will be included many new and important subjects. The extent and nature of the exhibit may be best portrayed by listing the individual exhibits:

Photomicrographs of the Temporal Bone—D. M. Lierle, M.D., Department of Otolaryngology and Oral Surgery, State University of Iowa.

A series of photomicrographs of sections of the internal ear. There will also be an exhibit of gross anatomic specimens of the middle ear tract.

Circulation in the Head and Neck of the Femur as Demonstrated by the Injection of Opaque Material—W. Eugene Wolcott, M.D., Des Moines.

Series of translites showing the circulation in normal and pathologic lesions of the femur.

Important Clinical Laboratory Procedures—W. E. Sanders, M.D., Mercy Hospital, Des Moines.

Demonstration of: microscopic injection illustrating gradings of cancer; polychrome stain on frozen tissue sections for cancer diagnosis; Kahn test for syphilis. Spinal fluid readings.

Electrocardiograms in Various Cardiac Diseases—L. E. Cooley, M.D., Dubuque.

An exhibit of typical and atypical electrocardiograms in the more important cardiac diseases.

Public Health Statistics of Dubuque—Dubuque Department of Public Health, W. J. Connell, M.D., Director.

A series of graphs indicating the gradual



control of the infectious diseases in Dubuque.

Cutaneous Granulomas—American Medical Association, Committee on Scientific Exhibits, Thomas G. Hull, Director.

A collection of selected photographs of cutaneous granulomas which the physician may encounter in general practice.

Activities of the Speakers Bureau—The Speakers Bureau Committee, Iowa State Medical Society, D. J. Glomset, M.D., Chairman.

A graphic exhibit indicating the number of lectures and postgraduate medical courses given before lay and professional groups throughout the state.

Exhibit of the Iowa Tuberculosis Association.

A graphic accounting of the fight against tuberculosis in Iowa will comprise the exhibit of the Iowa Tuberculosis Association. Six panels will describe:

1. The public health professional project tuberculosis surveys.
2. Sanatorium admissions by counties.
3. The annual death rate by counties, 1931-1935.
4. Declining death rate.
5. Chest clinics, 1918-1935.
6. Tuberculosis surveys, 1934-1935.

A lighted map of the state, outlining Iowa's sanatorium facilities and needs, will be another feature of the exhibit.

A Method of Administering Meningitis Antitoxin—James E. Dyson, M.D., Des Moines.

Series of illustrations showing the technic of intravenous immunization and methods of desensitizing sensitive patients.

Convalescent Sera, Purpose and Use—Iowa State Department of Health, Des Moines; Walter L. Biering, M.D., Commissioner.

An exhibit showing the different types of convalescent sera available and how they may be used in the treatment of infectious diseases.

Roentgenologic and Pathologic Studies on a Series of Unusual Clinical Cases—F. P. McNamara, M.D., and L. G. Ericksen, M.D., The Finley Hospital, Dubuque.

An exhibit of x-ray films with photographs and microphotographs of pathologic specimens from cases considered at the Clinico-pathologic Conferences.

Publications of the Finley Hospital Medical Staff.

A series of clinical case reports of unusual interest.

Anatomic Demonstration of the Paranasal Sinuses and Their Variations—E. M. MacEwen, M.D., Department of Anatomy, State University of Iowa.

Series of dissections which illustrate the normal paranasal sinuses and their anatomic variations.

Exhibit of Medical Publications—Jeannette Dean-Throckmorton, M.D., Iowa State Medical Library.

The more recent and important medical pub-

lications of interest to every physician will be shown.

X-Ray Encephalograms and Ventriculograms in Various Diseases of the Brain—C. VanEpps, M.D., Department of Neurology and H. Dabney Kerr, M.D., Department of Roentgenology, State University of Iowa.

Series of x-ray films which indicate the value of this method of diagnosis in brain lesions.

The Technic of Postmortem Examination—Julius S. Weingart, M.D., Des Moines.

A motion picture film showing the technic of postmortem examination. To be shown in the Club Room each day of the session at 1:00 p. m.

Technical exhibitors have responded in their usual cooperative manner in attending the Iowa State Medical Society meeting. New colorful and attractive booths have been planned for these exhibits. A list of the firms participating and a short description of their exhibits will be published in the hand program, which will be issued at the meeting.

Whether attendance at the State Society annual meeting is a new or an old experience for you, the Eighty-fifth Annual Session of your organization is one which you can profitably plan to attend.

#### ATTENTION! ALL GOLFING DOCTORS, FORE!

The Iowa State Medical Golf Association will hold its second annual tournament, Tuesday, April 28, 1936, at 1:00 P. M., at the Des Moines Golf and Country Club. Dinner will be served at the club house at 7:00 P. M., at which time appropriate awards will be presented to the afternoon's winners. A short business session will be held, after which bridge and other entertainment will be provided for the guests.

The champion of the Iowa State Medical Golf Association will be he or she who turns in the lowest gross score. Authenticated handicaps should be presented to the chairman of the local committee, and from these a low net will be awarded, as well as a prize for the lowest putting score, but no individual shall be awarded more than one prize. Green fees of \$1.50 include prizes, and the dinner will be \$1.00, attendance being optional.

Last year's tournament, the first official tournament of the association, was played on the course at the Rock Island Arsenal, and was most successful. Those who entered spent an enjoyable afternoon and evening, and it is hoped that this year's attendance will be even larger, and that many more physician golfers will take part in this newest society activity. Those desiring to participate in the tournament are requested to communicate with the local committee, which is composed of Drs. O. W. King, 922 Equitable Building, Des Moines, chairman; C. A. Sones, Des Moines; and Harold J. McCoy, Des Moines.

Donald C. Conzett, M.D., President  
Iowa State Medical Golf Association.

THE INFLUENCE OF ENVIRONMENTAL  
FACTORS UPON POSTURE\*

(With Special Reference to Psychic Experiences)

WILLIAM MALAMUD, M.D.

Iowa State Psychopathic Hospital, Iowa City

Within recent years the problem of posture has become the subject of intensive investigations by workers in the fields of medicine and education. The increased interest in this work, just as in the case of practically all the other subjects dealing with the structure and function of the human organism, has been conditioned not so much by a discovery of new objectives as by a change in attitude and angle of approach.

It has always been known, of course, that a "good" posture is of great significance in the development and maintenance of health; but, whereas previously the interests were mainly concentrated on establishing uniform standards of adequate posture, based on esthetic or artistic principles, and having as their primary goal the conformity of the average to this ideal, today we are slowly coming to the realization that posture is a matter of individual adjustment. The present day trend of the clinician and physiologist, pedagogue and educator, is to discover why certain postures develop and, in consideration of personal peculiarities, what should be the correct one in each particular individual.

The present communication proposes to discuss the influence of environmental factors upon posture, and since the author's interests lie mainly in the field of psychiatry, special attention will be given to those elements in one's environment which are generally referred to as "mental." An analysis of recent and contemporary contributions on this subject shows that, although a considerable amount of work has been done along neurophysiologic and anthropometric lines of approach, very little of it has dealt with the mental aspects of the problem. Thus we find the valuable work that investigators in the field of physical education have done on the relationships between posture and culture, posture and exercise, posture and anatomic structure. Another group of workers has contributed very extensively to the knowledge of the control exerted by the central nervous system upon posture. Here we think in the first place of the work of the Magnus School on the centers of the brain that control various postures; the works of the English physiologist Sherrington on the integration of the central nervous system and its relation to posture; and finally the works of some of the American physiologists on the development of posture (such as, for instance, the work

that is being done at the University of Iowa by Irwin and his group, and at Johns Hopkins University by Langworthy). I need not go further to show that a tremendous amount of literature containing some very useful and well proved facts has accumulated in this field.

It is an altogether different matter, however, in the case of the relationship between mental factors and posture. I find very little in the form of systematic studies that have actually been done in direct relationship to this subject, and yet all of us, whether we are students of normal or abnormal psychology or merely interested in the observation and interpretation of human behavior, know what an important factor posture is as an expression of behavior. Even in every day language we find significant evidence of this relationship. We all speak, for instance, of meeting a problem squarely, of planting our feet firmly on the ground, of keeping our "chin high," and numerous other allusions to the fact that the posture which a person assumes is certainly expressive of the mental activities that go on within him or the form of behavior which he is about to follow and, for all we know, may actually in some way influence his reaction to a given situation. To the psychiatrist this relationship must appear particularly obvious. I doubt whether in the study of mental diseases, in the attempt to size up the inner experiences and reactions of a mentally sick patient, we ever fail to use the impression that the patient's posture makes on us as we observe him. All psychiatrists are familiar, for instance, with the stiff, frozen posture of a catatonic dementia praecox patient; with the supercilious, haughty posture of the paranoid; with the dejected, slouchy posture of the depressed; with the overbearing, carefree posture of the maniac; with the careless, weak, relaxed posture of the mentally deficient or mentally deteriorated; and numerous others. As one goes through the wards of a hospital for mentally diseased persons, whether one knows anything about psychiatry or not, one can easily classify these patients according to the postures one sees in them, regardless of the actual psychiatric terminology. It was while thinking over my own experiences in this field and those which have been recorded by others in literature, that a number of questions occurred to my mind some of which I was able to answer one way or another, but most of which, however, I shall posit in terms of questions which I hope the members of this group shall be able to answer for me.

First, I start out with what I consider to be the most important question and it is: what is posture? Right here at the very outset I expect to get into difficulties. I wonder whether there are

\*Read at the meeting of the Health Section of the Iowa Physical Education Association, Des Moines, October 31, 1935.



any two persons in this audience who will agree on the definition of this term. Furthermore, having defined it, I wonder whether anyone will be able to convince the others that his definition is the one that can be universally accepted. However, a definition is important since it tells the others what the person defining the term has in mind when he uses it. In this way, even if we are not able to reach mutual agreement, we shall at least be certain that we have mutual understanding. From my point of view, posture may be defined as *a state of equilibrium between the various forces and tensions within the organism reached by it for the purpose of maintaining an adequate spatial adjustment to the environment for any length of time.*

I think this definition would bear some elucidation. Let us, for instance, take up first of all the last part of the definition, that is, that posture may refer to an adjustment maintained for any given length of time. We are usually accustomed to speak of posture in the case of a body when it is at rest. This, however, is not entirely true for we all know that motion no matter how fast really represents a succession of states of rest or equilibrium. Thus, for instance, the sprinter in the one-hundred-yard dash actually goes through a series of very rapidly changing postures, each one of which is maintained for a brief fraction of a second. The only difference between this posture and the one that is assumed in the case of a body at rest is that in the latter the particular posture is maintained for a longer period of time. On the other hand, we will come to see later that a state of rest includes a series of changes in motion no matter how difficult it may be to perceive that without adequate apparatus. The soldier who stands at attention could be shown to go through a series of changes in the tonus of his muscles, a sort of play of muscular activity of groups of muscles that oppose each other and in that way keep the body in the posture which the soldier is supposed to hold.

To understand this a little more adequately and to form a basis for elucidation of my definition as a whole as well as a basis for further discussion, let us look a little more deeply into the mechanisms of posture. It would be easier to understand these by approaching the problem in its simplest phase. Let us, therefore, for example, describe what happens when we observe a unicellular organism, such as the ameba, in its containing fluid. To all appearances this organism maintains a steady posture without, as far as one can see, any kind of change in it. This probably could actually be true if no changes of any kind occurred in the medium in which it lives. If, however, a change

is introduced, there is immediately a transformation in the organism for the purpose of adjusting itself to the change in conditions. If we tip the slide upon which it rests, we will find that the whole organism will immediately go through a metamorphosis and then again assume a new posture. If we introduce a new substance into the fluid, again a change takes place. If, for instance, food is introduced, there will be a change in the contour of the organism causing it to reach out something in the nature of an arm toward the food, ingesting it, and then going through a series of changes to assume a new posture. If a source of danger or discomfort is introduced, again a change takes place; either the organism moves away as a whole or rearranges its position or contour. All through the period of observation one will be able to perceive a trend of changes having as its goal the maintenance of equilibrium, various forces and tensions within the body arranging themselves in such a way that the body as a whole can maintain a proper relationship to the particular medium in which it exists. This is not only true in regard to the forces of gravity, but to every change that occurs in the outside, sources of dangers or food; receding from some features, reaching out for others, etc.

This series of changes can be observed, although in progressively increasing complexity, in all animals, including the human being. Here these changes if more complex are also more evident. No matter how much relaxation exists, the maintenance of a posture is always reached only through definite cooperation of ever present forces and tensions which have for their purpose the maintenance of equilibrium. One cannot go into a deep discussion of this problem here and I would refer to the works already mentioned above of Magnus and Sherrington. These observers have shown that in the central nervous system very definite centers are set aside for the purpose of controlling these forces. They are actually connected with groups or sets of muscles, some of which work together, others in opposition to one another but all of them integrated in such a way that when an equilibrium is established, they tend to keep the body in a set posture.

Having thus defined posture, the next and, practically, the most important question concerns the factors that control and influence these states. Naturally, the first thing which occurs to us in this relationship is the set of circumstances existing at the time a certain posture is being maintained. By these circumstances, of course, we mean conditions within, and conditions outside of the organism. If life were a matter of one moment of existence, only one set of circumstances

would need to be investigated in the study of posture. Actually, however, we know that life consists of an ever flowing series of changes through time. The human being is born and lives for a certain span of time. All through its life it proceeds from place to place, from event to event. Similarly, the environment in which the human being lives and develops also changes with the flux of time. As the human being grows, therefore, it is made to adjust to new conditions and at times is made to come back to conditions which have already occurred in its life. It is here that the most important, and for that matter, the most complex problems in the maintenance of posture occur. A change of surroundings makes for a change in posture, but these changes in our surroundings are never complete. There is always some component in the environment more or less similar to something that has gone on before. If the organism once becomes accustomed to a certain set of reactions for the purpose of maintaining equilibrium under certain conditions, whenever these conditions occur again, there will be a tendency to assume the same posture. At the same time, however, if some of the conditions are new, this posture again may have to be qualified in that respect. Thus it is that we gradually develop a series of habits or conditioned reflexes in our posture, some being very helpful, others being deleterious.

Just what takes place within a unicellular organism like the ameba as it lives from moment to moment, and possibly gathers impressions and develops habits, is something we cannot tell. Whether it, too, can retain memories of previously occurring dangers or moments of happiness, or whether there too these memories become attached to some special outstanding features is a question. Furthermore, it is problematic whether the ameba can in its posture not only express its desires to maintain equilibrium but also attempt to influence its environment in the way we do. In other words, whether an ameba can, figuratively speaking, shrug its shoulders or frown, is something outside the field of exact science at present. In human beings, however, we know that that quite definitely takes place—that a posture does not simply express the resultant of opposing forces within and without the organism so as to help the organism maintain equilibrium, but also harks back to the memory of what influence a certain posture has on other organisms around it. Furthermore, in a complex organism like the human being we find that the problem of maintaining a posture is not diffusely spread all through the body but seems to be under definite control of certain organs within the central nervous system. Not

only that, but within that system it is not only a matter of physical interactions but an interplay of factors, some of which we call mental and others physical, which seem to be almost imperceptibly interwoven with one another.

Both of these sets of factors are of great importance in determining what type of posture will be assumed at any given time. Thus we know that certain physical conditions during the life of the individual may cause the person to assume certain postures later on. We are all familiar, for instance, with the type of posture that is indelibly imprinted upon the individual who has had an attack of sleeping sickness—a frozen mask-like facial expression, the head thrust forward, the arms held stiffly by the sides, the shoulders hunched over the trunk, the legs lagging somewhat behind. Numerous other physical conditions may affect posture in a more or less similar way. I need not go into that, especially since one of the speakers will probably take this up in a more detailed fashion, but a horde of questions arises out of this one example. We ask, for instance, could anything be done during the time that the disease process is in its activity to prevent or moderate the development of such a posture? Furthermore, what is the influence upon the mental and physical development of this person if such a posture has been conditioned early in life? What influence does such a posture have upon other people with whom this person associates? Do they gradually get to connect certain mental characteristics with such a posture, and do they tend to expect certain types of reactions from such a person because he shows this posture? This, as a matter of fact, is true, and time and again we have seen in the case of these patients the common mistake made by their associates that because the person has this posture, therefore, he also has certain mental activities which, as a matter of fact, are not there.

Similarly, we come to ask the question, what is the relationship within the person himself of forms of posture and forms of behavior; in other words, which comes first and which is secondary? It is a well known fact that a mental state of one kind or another may express itself even in a normal person in the assumption of a certain posture. Defiance, anger, fear, suspiciousness, depression, and a number of other conditions all have characteristic parallel postures. On the other hand, we also know that the mere assumption of a posture brings with it a certain mental attitude. The mere consciousness of squaring one's shoulders gives one a feeling of self-confidence in meeting a problem. A dejected posture, which may originally have been produced by a state of depres-



sion, if maintained long enough may actually give the person the feeling of despair and hopelessness, and so on ad infinitum. What then shall we say of the relationship between the physical state of posture and the mental attitude? Philosophers throughout the ages have wondered about the relationship in this respect, as well as all other respects, that exists between the body and the mind. Shall we invoke here the Cartesian dualism or shall we look upon it as Spinoza does, that is to say that the human being constitutes an indivisible whole in which mental and physical features are both expressive of one and the same occurrence?

This, then, brings us to the heart of the problem of education or conditioning of posture. Here we will ask primarily two questions. First, what influence may occurrences during development or education have on posture? Second, what influence may posture have on development? The first question of whether posture can be influenced by things that occur to the child, we will have to answer most decidedly in the affirmative. Physical as well as mental factors can be seen to influence this situation very materially. I have already referred to encephalitis which, having occurred in early life, may leave the person with a definitely distorted posture. Various diseases, such as infantile paralysis, tuberculosis, and numerous others, frequently result in changing the posture in such a way that later on it may interfere first with the physical functioning of the organism, and second may determine the development of various mental twists either as a direct result or as a compensatory mechanism. We will here ask our colleagues to discuss what can be done in this respect. The physician who deals with the organic diseases may be able to tell us what physical and mental therapeutic agents can be resorted to for the purpose of counteracting the distortion of posture that follows such diseases. The mental hygienist and the educator may be able to tell us how we are to teach the child to adjust himself properly to such handicaps, if they cannot be prevented.

In contradistinction to the above, or rather as a parallel to it, we must next consider the influences upon posture of various mental conditioning factors. Since this problem is more nearly related to my field, I should like to discuss the possibilities here in a more systematic fashion. Furthermore, I shall be glad to pick up the trend later in the discussion if anyone should wish to have further information on the subject.

Let us take our point of departure from the statement made above that in the human being postures assumed in relation to given situations are not purely the results of reaction to those situations as totally new ones, but are determined

by the fact that some of the elements in the situation are similar to others that have been experienced in the past. In other words, we bring with us memories of previous occurrences that have made us assume certain definite postures and which create what we could designate as fixed posture patterns. We, therefore, come into these situations in some way prepared by predetermined postures. The conditions which can thus affect us are, of course, numerous and present probably as many different types as there are human beings. In a general way, however, one can consider them under the headings of certain fundamental categories somewhat as follows:

1. *Direct conditioning*: The child who, throughout its early development, has been exposed to threatening influences such as severe punishment, dangers to life, social recrimination to himself or family, etc., will frequently develop characteristic postures which he may carry into adult life. These may be in the form of the cringing, self-effacing, self-protecting types, postures that remind us so much of the picture we see in the case of abused animals. In a different type of individual, however, such experiences may condition the defiant, snarling posture of the animal driven to its last stand and fighting superior forces. To appreciate all the possibilities in this category it is important to realize that in infancy and early childhood, at a time when language has not as yet reached the stage of the controlling feature in expression, gestures, motions and bodily postures are used frequently as representative of inner experience. Pleasure, approval, fear, desire, protest, etc., may and usually do become symbolized in physical expression. Just as language in later years gradually accumulates idioms and figures of speech, so these earlier forms of expression, if repeated often enough, may become fixed patterns of behavior.

2. *Imitation*: The child develops in the presence of and in relationship to society, his behavior being molded by the situations he meets in that society. Experience teaches the growing child what forms of behavior are most likely to meet with success, and these experiences go into the formation of a set of standards. In building these the child actually incorporates certain acts of behavior as he perceives them in various members of society. In other words, the child imitates. It is logical to assume (an assumption which is actually borne out by fact) that those people who are closest to the child and are representative of authority will serve most frequently as models for such imitation. Thus it is that in the construction of what will later become the "characteristic" posture of the adult, imitation serves as a very important factor. I need not dilate on this by giving examples. All of us know how easy it

is in the case of most people to recognize postural peculiarities that have developed on that basis.

3. *Unconscious identification*: Anyone of us who has had the opportunity of observing the retinue of some important person will have no difficulty in observing how very likely one is to exhibit in his gestures, mannerisms and postures certain, even if minor, peculiarities of the central figure. In contradistinction to pure imitation, however, we are dealing here with an unconscious process which depends upon the fact that in admiring a person we tend to identify ourselves with him, and to complete the identification we pick up every possible characteristic, useful or otherwise, and make it part of our own behavior. This holds true in the case of any emotional association. We tend to identify ourselves with people whom we love, admire, are jealous of, and paradoxically, even those whom we hate. This process differs from that of imitation in that the particular characteristic acquired has no value of its own other than being a peculiarity of the person with whom we identify ourselves.

4. *Symbolic expression*: Throughout the history of mankind in the process of the evolution of present day behavior certain physical configurations have gradually come to stand for definite mental states or attitudes. Shoulder shrugging, winking, sneering, frowning and numerous others have become symbols either of local or universal significance. Whenever a person is unable or does not dare to express a feeling in language he may express it, sometimes automatically, in such a physical act. Although in most normal people this goes only as far as gestures, one finds in mentally abnormal persons that such an expression may become a fixed posture. One sees this particularly in certain types of mental diseases. A young woman sitting up stiffly with her arms crossed on her chest, eyes turned upwards, and an expression of exaltation permanently fixed on her face, will on deeper analysis be found to express in this symbolic posture the idea of saintliness and purity. Another patient held for months a posture in which he stood with one arm raised upward, the head thrust forward, and the shoulders squared back, a posture which to him symbolized victory over his baser instincts. It is true, of course, that extreme cases of this type are found very infrequently. Once one is aware of these possibilities, however, it is not at all difficult to find examples of less obvious, but nevertheless, just as permanently fixed features in the postures of all of us. As an example I am reminded of a girl who developed round shoulders and a very unhealthy and unesthetic arching of the back on the basis of identification with her father who

was very tall and slim and who carried himself in that posture.

Let me clear up a possible misunderstanding. The mechanisms mentioned above need not always lead to faulty traits. On the contrary, in the development of posture as well as behavior in general, these mechanisms are the most important means of education. They provide us with those acquired and fixed characteristics which may be regarded as the backbone of personality and which may furnish us with the easy and natural poise that are the results of a good education. Being fixed in nature, however, they can also become the determinants of decidedly faulty and deleterious habits. It is this last possibility that brings us to the practical implications suggested by the above discussion. It is obvious that if character formation can be reduced, in part at least, to conditioning in early life, we are forced to the conclusion that, whatever the native endowment of a child may be, faulty habits may be prevented and good ones established on the basis of a judicious control of certain factors; furthermore that certain habits having been established, their removal, if deemed advisable, can best be attempted if one has a basic understanding of their mechanisms.

We have seen that certain faults in posture caused by physical factors, some of which we have no means of preventing, may give rise to the development of faulty mental attitudes. Similarly, we have learned that certain mental experiences may condition the development of definite and characteristic posture anomalies. In the intricate web of psycho-physical interactions vicious circles are developed, the two progressing in a mutually supplementary and accentuating fashion. As long as the relationship remains unknown the abnormality will not only persist but will actually continue to grow, and it is only on the basis of an understanding of their mechanisms that we can hope to prevent their occurrence or check their progress.

#### INDICATIONS FOR REMOVAL OF TONSILS AND ADENOIDS\*

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It is with some hesitation that one approaches today the subject of the appraisal of tonsils and adenoids. The pendulum of thought and opinion has at times swung wide and violently with regard to their removal. In a review<sup>1</sup> of a number of articles on this subject one is impressed with the outstanding fact that only a few of them were

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written by pediatricians, the majority being written by laryngologists.

The faucial tonsils are relatively large in early life. No one knows whether or not they play any part in the nutrition and growth during infancy and childhood. There is much difference of opinion as to whether they prevent or favor infection of the cervical lymph nodes. Morris<sup>1</sup> states that he has never seen any disturbance of nutrition, growth or development; or any local or general infection develop after their removal which, in his opinion, was the result of removal, or which would not have occurred if the tonsils had not been removed. To sum up all that has been said about the function of the tonsils, we may say that any attempt to assign them a special function, different from that of the rest of the lymphatic tissue, has failed.<sup>5</sup>

When examining tonsils it is often difficult to know where normal hypertrophy ends and hypertrophy from chronic irritation or recurrent acute inflammation begins. It is probably safe to say, however, that when tonsils are sufficiently large to interfere mechanically with respiration and deglutition, part of the enlargement, at least, is pathologic.<sup>1</sup> It must be remembered that it is impossible to tell from the appearance of the outside of a tonsil what may be inside of it, and that the small buried tonsils are just as likely to be diseased as those which are enlarged. If tonsils appear diseased they should be removed whether or not they show evidence of infection or toxic absorption.

For many years the removal of tonsils of children was an exceptional procedure but with the development of preventive pediatrics, more attention has been given to their enlargement and disease.<sup>2</sup> The frequency of enlarged and diseased tonsils is variously given and two competent observers, examining the same group of children, will vary considerably as to the percentage of children whose tonsils should be removed.<sup>2</sup>

Patients examined immediately after an acute infection of the upper respiratory tract, may have very large tonsils, and yet one or two months later the tonsils may have shrunk to well within the pillars.<sup>2</sup> Consequently the decision to recommend removal of tonsils of large size or of other abnormal appearance, should not rest on a single examination, nor is the normal size and appearance of the tonsils at any one examination an indication that they are not a source of danger to the patient. The past history of the child is of greater importance than the appearance of the tonsils at any one time.<sup>2</sup>

It is not good practice to subject a child to a

tonsillectomy without first having had a careful physical examination. I am sure this procedure is not always carried out. Perhaps too often the physical condition of the patient outside the direct evidence for tonsillectomy is responsible for failure in the end results following operation. The tendency is to look upon the operation of tonsillectomy too lightly and let children up and about too quickly. It takes a week to recover entirely from the shock of the operation and the throat is susceptible to infection until the denuded surface is healed.<sup>4</sup> At the Mayo Clinic the laryngologists remove tonsils of children only on recommendation of the pediatricians, simply because they feel the pediatricians are in a better position to judge the necessity for removal.

Before mentioning the indications for tonsillectomy something might be said as to the factor of age. The growth of lymphoid tissue is different from that of the body in general. Such tissue grows rapidly during the first six years of life and then lags, so that the younger the child the more careful should be our opinion as to such tissue removal. Large tonsils after the child is six or seven years of age, in the absence of a recent acute infection, are more likely to be infected, and their removal more definitely indicated; but even then one should not rely on a single examination. Helmholtz<sup>2</sup> gives the following indications for tonsillectomy:

1. Sufficient enlargement to obstruct the nasopharynx.
2. Recurrent acute follicular tonsillitis.
3. Chronic enlargement of cervical nodes especially of the node at the angle of the jaw.
4. Recurrent otitis media.
5. Rheumatic fever, heart disease, pyelitis and other conditions in which the tonsils may act as a foci of infection.

Under the first indication may I say that when upon repeated examination the tonsils are sufficiently large to produce symptoms of obstruction they should be removed, but only after several examinations since even a succession of colds occurring during the winter months may be followed by sufficient shrinkage during the coming summer months to alter one's original opinion.

Acute recurring follicular tonsillitis may be determined by characteristic recurring attacks of illness with high fever, sore throat, leukocytosis, malaise and headache. Early in the attack only slight swelling of the tonsils may be present but within twenty-four hours they become large, red and covered with masses of follicular yellowish-gray exudate which can be readily removed. About this time the swelling occurs in the lymph

nodes at the angle of the jaw. Within three or four days the temperature returns to normal but the child displays the result of the infection for several days. This type of infection is usually caused by a hemolytic streptococcus and may occur during the first year of life or any time thereafter. Such illness may occur monthly or at less frequent intervals, but the clinical picture remains the same. Two or three of such attacks would be sufficient indication for tonsillectomy. Many children suffer each winter with recurring colds, which start with obstructed nasal breathing followed by free discharge, and which may end with an irritating cough. This condition is to be distinguished from tonsillitis, since the removal of the tonsils may not benefit the patient and recurring bronchitis may result.

Chronic enlargement of the lymph nodes at the angle of the jaw represents chronic infection of the tonsils. Enlargement of the gland does not refer to mere probability but to definite enlargement with a tendency to changes in the size of the gland, varying with the amount of absorption from the tonsil.

If, after having made several examinations covering a period of two or three months, in the absence of a new infection, the glands remain large, then I feel that the tonsils should be removed. Likewise tuberculosis of the nodes of the neck is a definite indication for tonsillectomy, as it very considerably reduces the possibility of a breakdown of the glands.

The fourth indication for removal of the tonsils is recurring otitis media complicating varying infections of the upper part of the respiratory tract which in due course of time heal without further symptoms and without tendency to recurrence. While this is the rule certain children who have these colds frequently have a complicating otitis media. It is more than probable in such cases that the adenoid tissue produces obstruction of the eustachian tubes with lack of drainage and the occurrence of the otitis media. Removal of such tonsils should eliminate the tendency to recurring otitis media, but in some cases where adenoidectomy alone was performed otitis media recurred and subsequent removal of the tonsils freed the patient from further attacks. It would seem advisable to remove both tonsils and adenoids in children who suffer attacks of recurrent otitis media.

The fifth indication for tonsillectomy is the presence of disease elsewhere in the body which may be the result of infection of which the tonsil may be the port of entry or focus. This includes

the so-called rheumatic cycle; acute arthritis, endocarditis and chorea. Pyelitis, chronic rheumatism, nephrolithiasis and other conditions may be improved by the removal of the tonsils. While the removal of the tonsils does not of course remove all possible sources of infection, it is generally accepted that in childhood the tonsils are one of the most common sources. Generally speaking tonsillectomy should not be done during the acute stage of the disease. In the case of rheumatic fever it is usually advisable to wait three or four weeks depending of course on the condition of the heart. In considering the tonsils of a child, up to the age of fourteen years, the adenoids are also usually reckoned with and after the age of three years they are nearly always both removed at the same time.<sup>3</sup>

Some of the infections of childhood are caused by the adenoids blocking the nasopharynx, the chief ones being otitis media and acute sinusitis. Just how big a part the tonsils play is not certain. O'Mally feels that the adenoids are in the main responsible, first, by direct extension of sepsis up the eustachian tubes, and second, by blocking the orifice. Beneficial results derived from the removal of the adenoids is sufficient proof of these being the cause. Since the adenoids are responsible for acute otitis media so are mastoids indirectly associated. Many observers give as an operative indication signs of deafness which may or may not be increasing and which are traceable to the adenoids. Adenoids are largely responsible for sinusitis in children. Dean reports 80 per cent of children cured of sinusitis by the removal of the tonsils and adenoids, but blames the adenoids entirely.

#### CONCLUSIONS

Conservatism is indicated when contemplating removal of tonsils in the first six years of life.

If the five indications mentioned are adhered to this conservatism will be well carried out.

The removal of tonsils and adenoids is not the simple procedure most people regard it and should be performed only by those who are competent.

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## DIARRHEA IN INFANTS AND YOUNG CHILDREN\*

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The subject of diarrhea in infants and children is of much less significance than it was a few decades ago. Any one who practiced medicine in the last of the nineteenth, or early in the twentieth century remembers this scourge which visited the children of this age group every summer. It caused the death of large numbers of children, and seriously depleted a great many others. Even as late as 1923, 292 infants and children in the state of Iowa died from diarrhea, an incidence of 11.9 per 100,000 population. This number was diminished by more than one-half in 1933, when 100 died of this cause; an incidence of four per 100,000. This is in marked decrease to the mortality rate of diarrhea in the early part of the twentieth century, exact figures of which are not available.

This decreased incidence is due to many factors, among which are the following: sterilization of utensils used in the preparation of food; pasteurization of milk, and cleanliness in its collection and storage, and also in the handling of milk products; improved water supplies; more adequate refrigeration, and thus, the ingestion of less spoiled food; the decrease of the house fly menace, because of better screening, and better garbage disposal. Another factor which seems of importance is the diminution of the clothing of infants, and small children. Within the last two decades, the practice of using a woolen band, a woolen shirt, and two woolen petticoats through the second summer has been supplanted by the use of a single diaper, or a sun suit during the hot weather. I believe this, too, is a marked factor in the decreased incidence of summer diarrhea.

A useful classification of diarrhea is as follows:

1. Infections:
  - Dysentery, bacillary
  - Amebic dysentery
  - Gas bacillus
2. Diarrhea from Foods:
  - Improper milk mixture
  - Spoiled food
  - Non-edible foods (green fruits, etc.)
3. Parenteral Infections:
  - Upper respiratory
  - Pyelitis
  - Cystitis
4. Miscellaneous:
  - Newborn

Heat

Nervousness

Home environment

Nervous strain from any cause.

Since time does not permit the discussion of all these types of diarrhea, only the more common will be dealt with; namely, those due to food, parenteral infection and heat.

The common dietetic causes of diarrhea are overfeeding, underfeeding, contaminated food, and improper food mixtures. In regard to the two former, a careful study of the patient as to the amount of food ingested and retained should easily establish the fact of either over or under-feeding. Once the etiology has been established, the treatment is obvious, readily disposing of these two types of diarrhea. In regard to improper food mixtures, one may have an excess of protein in which we find a foul putrifactive stool, or an excess of carbohydrate, in which the diarrhea is fermentative in character. The correction of the dietetic error is all that is necessary in the mild cases, while more definite measures, which will be given in detail later, are necessary in the severe cases. Diarrhea due to spoiled food may be due either to the bacterial content of such food, or to toxins which develop incident to the decay of the organic material. The symptoms usually occur more acutely, and the early prostration is more severe, if due to food toxins than when due to the bacterial content of the spoiled food. In other instances, the diarrhea may be due to ingestion of inedible foods, such as green apples, or green berries, in which case, the cause of the diarrhea may be largely mechanical. The hard, indigested pieces of apple overstimulate the sensitive gastro-intestinal mucosa, thus producing excessive peristalsis. That parenteral infections cause diarrhea is almost universally accepted, although the method by which the diarrhea is caused is not clearly understood. Pyelitis or cystitis may cause profound diarrhea. All upper respiratory infections may cause diarrhea, but the parenteral infection most frequently responsible for severe diarrhea, is either that of the mastoids or the paranasal sinuses, in which drainage is inadequate. This last statement, I believe, has been conclusively proved by several clinicians, notably Jeans, Floyd, Marriott, Dean and others. I had the privilege of observing many of the cases reported by several of these authors, and I feel that the clinical syndrome of mastoiditis or sinusitis, and diarrhea with marked dehydration, is established beyond controversy.

That diarrhea occurs more frequently during hot weather than at any other time is another well recognized fact. This is easily understandable

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because all of the factors, except infection, are augmented by hot weather; namely, overingestion of food by a thirsty infant, the ingestion of partially spoiled food from improper refrigeration, the growth of bacteria is much more prevalent in warm surroundings than in cold, thus increasing the opportunity of ingesting food containing large numbers of bacteria. Flies are prevalent during hot weather, and practically absent otherwise. This does not account for the fact, however, that diarrhea is much more prevalent in the excessively hot summer than in the normal summer. It must be assumed that heat *per se* is also a primary cause of diarrhea.

The symptoms of diarrhea are well known. The onset may be abrupt or gradual. The stools become frequent, the child passing from five to twenty stools in twenty-four hours. He loses weight, the eyes become sunken, the tongue dry, and he becomes restless and fussy. As the condition progresses and the symptoms become more profound; the fontanel, if open, becomes sunken, the skin becomes dry and loses its elasticity, vomiting usually occurs, and the child becomes toxic, stuporous, or comatose. The urine becomes scanty as these symptoms develop, and convulsions may develop and continue throughout the course, or they may subside as deep stupor or coma develops. The frequent stools continue even with little ingestion of food.

Poole and Cooley have shown that such symptoms as toxemia, vomiting, stupor and coma are due, for the most part, to anhydremia, bacterial toxins and acidosis; and, furthermore, that the chief requisite of the patient is water, with which to restore again the blood volume and diminish its concentration. With the blood volume restored, a more nearly normal output of urine is obtained. This is important since the bases are largely excreted in the alkaline stools and it is necessary to maintain a normal flow of urine in order for the acid radical to be excreted, and an acid base balance to be maintained.

#### TREATMENT

A decade ago there was a wide variation in the methods of treating diarrhea. At the present time there is a marked uniformity of thought regarding the essentials of good treatment. The initial dose of castor oil has been discontinued, since the rapid peristalsis has swept the gastro-intestinal tract clean of all foreign material long before the patient is presented for treatment. There is little to be gained by furthering the patient's discomfort by purgation. Most authors feel that in case of pain and restlessness, opium, usually in the form of paregoric, is of value; it decreases peristalsis

and diminishes restlessness. Atropine in suitable doses is valuable, if enterospasm is present. Barley water, and weak tea are often given during the initial stages of the treatment. Starvation for twelve to twenty-four hours is still desirable in some cases, but is used much less frequently than formerly, and the starvation period is much shorter. Hartmann has suggested a buffer solution composed of lactic acid, fifteen cubic centimeters, U. S. P.; sodium bicarbonate, twenty cubic centimeters of a ten per cent solution; and water up to one hundred cubic centimeters. One part of this solution to ten parts of water should be given during the starvation period. It may be given alone, or in conjunction with one of the sugars. This solution tends to maintain the normal acidity of the upper gastro-intestinal tract, and diminish bacterial growth.

A discussion of the treatment for diarrhea would be incomplete without mention of the raw apple diet. This treatment has been used by the laity in Germany for a great many years. It was first systematically used in the Kendersanitarium at Koenigfield, Germany. The treatment is carried out as follows: five to fifteen hundred grams of ripe, raw, pulped apple are given in twenty-four hours; one to four tablespoonsful every hour for twenty-four to forty-eight hours. This may supply enough liquid, but if it does not, weak tea may be given in addition. This treatment has received considerable favorable mention during the past three years. There is, however, little uniformity of opinion as to the portion of the apple which produces the beneficial effect. Some attribute the good effect to the malic acid; some the acetic acid; others feel that it is due to the mechanical effect of the bulky diet; still others feel that the pectin is the effective factor. This seems to be the most probable theory, since pectin from other sources seems to be of value, while the same amount of acid fails to be of benefit.

As mentioned earlier in the paper, dehydration seems to be the cause of the major untoward symptoms of diarrhea. Consequently, the treatment of diarrhea is primarily the treatment of dehydration. Fluid should be given by mouth, up to the limit of the child's ability to retain it. If this is not sufficient to restore the normal urinary output, then fluid should be given parenterally. There are several routes available; it may be given intravenously, intraperitoneally, or subcutaneously. Any, or all of these routes may be utilized. The fluids of choice are saline; glucose five per cent in saline; Ringer's solution with glucose; or Hartmann's solution and glucose. As much as twenty cubic centimeters per kilogram of theoretical body weight may be given at one time. This



may be repeated at intervals of three to four hours. If the amount of body fluids are restored to normal by means of any of these solutions mentioned, the acid base balance tends to restore itself, the bacterial toxins are excreted, the cerebral anoxemia is overcome, and the child has a good opportunity of recovering from his diarrhea, provided the exciting cause has been eliminated. If improper food is the cause, this must be eliminated, if excessive heat is the cause, a change of surroundings is necessary, if the mastoids are infected they should be drained; but the removal of the cause, without the replacing of the body fluids will seldom result in a return to health of the child. The administration of the adequate suitable fluids is of paramount importance, and is the part of the treatment most frequently neglected.

#### SUMMARY

1. Items which have diminished the incidence of diarrhea include:
  - Better feeding formulae.
  - Cleaner collection, storage and pasteurization of milk.
  - More adequate garbage disposal.
  - Better refrigeration.
  - Better screening against flies.
  - More sane clothing habits.
2. An appreciation of the causes of diarrhea and their correction, especially as regards the parenteral infection, has improved the chance of recovery.
3. The apple diet has been outlined.
4. The paramount need of adequate fluid intake has been stressed.

#### GASTRO-INTESTINAL ALLERGY AND MIGRAINE IN CHILDHOOD\*

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Gastro-intestinal allergy is encountered more frequently in childhood than in adults. It is a well accepted fact that the foods are the chief allergic factor in infancy and early childhood, but as the child passes the age of four or five years this sensitivity to food decreases and the inhalants gradually supplant them in importance. Inasmuch as the foods are usually, although not always, the disturbing factor in gastro-intestinal allergy, the greater incidence during infancy and early childhood is not surprising.

The writer is convinced that a great many of the cases of colic in infancy are merely manifestations of food allergy. This is true even in the breast fed infant, inasmuch as the offending pro-

teins may be excreted in the breast milk. When the gastro-intestinal disturbance is associated with eczema, even in the mildest degree, this probability is greatly increased. It is also well known that as the infant grows older these idiosyncrasies to food become less evident, although in many instances they may persist in a latent form and later manifest themselves in a different manner. Allergic disturbances due to foods may simulate practically any disorder of the gastro-intestinal tract and allergy must be ruled out in any diagnosis upon any individual who is known to be allergic. Time does not permit a general discussion of these disorders for we are chiefly concerned with the relation of gastro-intestinal allergy to migraine in childhood. During recent years migraine has been added to the list of disorders that may be allergic. Rowe<sup>1</sup>, Eyer mann<sup>2</sup>, Vaughn<sup>3</sup>, and Balyeat<sup>4</sup> have been the chief exponents of this theory. While the theory has not been universally accepted and while no one contends that all migraines are allergic in nature nevertheless incontrovertible evidence is accumulating that many of them are. It at least must be conceded that the results thus far obtained through dietary manipulation and on the basis of specific sensitization have been superior to those obtained through any other single method of treatment.

We are not prone to associate migraine with children and the general conception that, while migraine may occur in children, it is rare, is probably not true. Balyeat in a series of 202 cases of migraine found that 29.7 per cent of his patients stated that their attacks began before the age of ten years. The symptomatology in childhood often varies from that in adults in that the headache may be very slight and entirely overlooked. In fact some of them do not complain of headache although they may have it in a slight degree. I have often found that many of these children complain of "dizziness" rather than a headache, but as they grow older the dizziness is replaced by the typical headache. Furthermore in migraine in children we have a picture of periodic gastro-intestinal upsets associated with all of the symptoms of migraine which may be overlooked because the headache is not a predominating symptom; in fact that the child has any headache whatsoever may be elicited with difficulty and only after careful questioning.

Balyeat also believes that cyclic vomiting so often seen in children is allergic. Pediatricians may feel inclined to dispute this as they have laid great stress upon focal infections in the etiology of cyclic vomiting. Possibly there may be an element of both focal infections and allergy involved.

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It is a well demonstrated fact that children who have or have had cyclic vomiting commonly develop migraine in later years. Surely the symptomatology of cyclic vomiting and migraine are identical except for the symptom of headache and we would agree with Balyeat when he states that "symptoms diagnosed as cyclic vomiting in a child with other allergic diseases or whose family tree is saturated with allergy mean migraine."

We wish to present three cases of migraine which will illustrate some of the points under discussion.

Case 1. F. K., six years of age was first seen in July, 1934, with a history of headaches for the past six months. The mother stated that the child had acute gastro-intestinal upsets with vomiting, abdominal pains, temperature usually not exceeding 101 degrees and accompanied by a very severe headache. These attacks usually lasted forty-eight hours, but in the interim he was probably never entirely free from headaches as he was extremely irritable, would not play outdoors and, as the mother stated, was an entirely changed child. He complained frequently of indefinite abdominal pains. Because of the periodicity of the attacks, the severe headache and the fact that both mother and maternal grandfather had migraine the diagnosis of migraine was obvious. There was no history of allergy in any other form. The child's past history showed nothing significant. His tonsils and adenoids had been removed two years previously and the findings on physical examination were negative except that he was moderately undernourished. There was no evidence of focal infection. His blood picture showed nothing significant, except for an eosinophile count of four per cent. He was tested intradermally for foods and significant reactions were obtained to eggs, four plus; tomato, two plus; apple, three plus; banana, two plus; pineapple, three plus; and prune, three plus, all of these foods being in his dietary, particularly eggs which he was taking in the form of eggnoggs. Elimination of these foods resulted in a complete cessation of these symptoms and with the exception of one period in which he indulged in some forbidden fruits he has been entirely free from symptoms up to the present time.

Case 2. R. O., nine years of age, has been under observation since infancy. There was nothing significant in his early childhood with the exception of a tendency to upper respiratory infections and because of this his tonsils and adenoids were removed when he was five years of age. He has always been what is commonly called a nervous child. He has had no evidence of allergy and there is no history of allergy in his family tree,

with the exception that his father and paternal grandfather both had migraine. At the age of six years he had attacks of dizziness and fainted in school on several occasions. In his seventh year these attacks became more frequent and were followed by a headache. These attacks would last from one to three days and cause him to be absent from school. He complained of nausea and abdominal pain at these times but there was little vomiting. Headache became, however, an increasingly prominent symptom so that finally the picture was that of a typical migraine. He was tested intradermally for foods and inhalants. He showed marked reactions to oranges, two plus; feathers, three plus; tomato, three plus; oats, three plus; and chocolate, three plus; and lesser reactions to wheat, string bean, beets and cabbage. Oats, tomato, orange and chocolate were eliminated from his diet with almost complete relief from symptoms. For the past fifteen months he has had no migraine except in a mild form on two occasions, once after an injury and again at the onset of measles.

He has had a few transient attacks of dizziness at long intervals. The significant point in this case is the absence of headaches for a period of two years, although he later developed a typical unilateral headache associated with the other symptoms of migraine.

Case 3. G. H., eight years of age, has also been under observation since early infancy. She was artificially fed and thrived nicely up to the age of five months, at which time she had an acute gastro-intestinal upset with vomiting, diarrhea and fever. This subsided within a few days but these attacks recurred at irregular intervals up to the age of fifteen months when they began to recur at regular intervals of three weeks. Because these attacks were usually associated with slight redness of the throat the tonsils and adenoids were removed at the age of eighteen months. There was a prompt cessation of these symptoms.

After a period of striking improvement in her appetite and general health she again developed an anorexia associated with a coated tongue, foul breath, indefinite abdominal pains and constipation. She became a definite problem child from the standpoint of feeding. One day at the age of twenty-eight months while playing out doors she fell in a faint with a fixation of the eyes and a general stiffening of the body but there was no twitching. She had a similar attack eighteen months later and another one in another three months. Because of the other symptoms these attacks were thought to be due to a digestive disturbance and milk was eliminated from her diet for a period of three weeks. There was an im-



provement in her general condition but the symptoms returned when milk was again added to the diet. She was then placed on evaporated milk and her condition improved definitely for a time. After a few months the attacks of abdominal pain returned. The pains were referred to the umbilicus, were most severe during and after meals and at no time were there any findings suggestive of appendiceal irritation.

In the autumn of 1933 she began to complain of unilateral frontal headache recurring definitely at intervals of a few days, although it is probable that she was never entirely free from headaches inasmuch as she was exceedingly irritable, cried easily and refused to play with other children. She also began to do poor work in school and was put back a half grade. This was partially due to the fact that she was absent frequently because of what was thought to be colds. The mother consulted me in a rather desperate state of mind as she felt that there was something seriously wrong with the child.

On physical examination the findings were negative except for a moderate degree of malnutrition. There was no evidence of focal infections. Knowing the past history of the child and because there was some allergy in the family tree, a sister having eczema during infancy and the maternal grandmother having migraine and an idiosyncrasy to milk, it was felt that the disorders were allergic and she was tested intradermally. She showed significant reactions to feathers, four plus; wool, three plus; beef, three plus; and chocolate, three plus. When feathers were removed the tendency to colds entirely disappeared. Within two weeks there was a complete transformation in the child. She again became happy, active and within a short time was put back in her class in school. There has been no recurrence of headaches during the past fifteen months. The mother by clinical testing has discovered that cow's milk, orange and grapefruit will still cause abdominal pain although she is not skin sensitive to these foods inasmuch as the tests have been and are still negative to these foods. Wheat even in small amounts will cause constipation.

This case presents several interesting features: first, the relief of the attacks by the removal of the tonsils and adenoids; second, the appearance of vague gastro-intestinal symptoms and the fainting attacks which might be interpreted as attacks of grand mal; third, the appearance of a typical migraine headache; and fourth, the tendency to upper respiratory infection. These symptoms have all been controlled by the removal of the offending foods or inhalants.

#### SUMMARY

Migraine is not, as commonly believed, rare in childhood. The picture differs from that in adults in that headaches may be a minor symptom particularly in the very young. Attacks may also be accompanied by fever even as high as 103 or 104 degrees.

Three cases of migraine are presented in which almost complete relief was obtained by the elimination of certain foods from the diet. This is in accord with the theory that many cases of migraine are allergic. It is probable that many cases of cyclic vomiting are allergic.

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### THE MANAGEMENT OF THE PREMATURELY BORN INFANT\*

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The high mortality rate associated with premature birth contributes in a large measure to the high death rate in early infancy. Even if such an infant survives, intracranial hemorrhage and subsequent brain damage frequently are associated with the delivery of the premature, and offer additional hazard for normal development. The most effective efforts in the management of prematurity will be those directed toward its prevention. Recognizing, however, the certainty that in spite of all medical efforts directed toward such prevention, premature births will constitute an appreciable percentage of all births, it is necessary for the physician to become skilled in the medical and nursing care of such infants if their lives are to be saved.

Although the principles of management of the prematurely born may be expressed simply, their application is furthered if one is familiar with the reasons for each step. The need for special care of such an infant is determined by the physiologic immaturity of the organism at the time of birth rather than by the small size of the infant or the duration of the period of gestation. Instead of completing its development in an environment ideally adapted to its needs, the prematurely born infant must subsist in surroundings which at the best are definitely inferior in every respect to life in utero. The success attained in

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carrying such an infant through its first few weeks of life depends on the degree in which the surroundings can approximate the safety of intrauterine life. This involves measures to maintain nutrition of suitable degree and nature, suitable temperature and humidity, and avoidance of infection.

The fetus is nourished from the constituents of the mother's blood; its gastro-enteric tract is not involved in the utilization of its nutriments as in postnatal life. The foodstuffs carried to its tissues are already adapted to its needs; these are added to the tissue constituents already present, the processes being primarily anabolic or constructive, with much less catabolism than is seen in the more mature individual. The watery medium which surrounds the fetus prevents oscillations of body temperature, and maintains a maximum degree of humidity. The vital functions of the fetus are supplemented or replaced by the activities of the maternal organism. With but slight responsibility for its vital processes, the fetus lives a parasitic existence, and the last few weeks of intrauterine life enable it to gain a store of growth essentials for early infancy, and to adapt itself for independent life.

Up to the completion of the normal period of gestation, the fetal body is both quantitatively and qualitatively immature. Few of the vital functions are equipped for the vicissitudes of extrauterine activity, and must be protected markedly if such existence is enforced and life is to be maintained. In the early weeks of viable prematurity, the ability of the gastro-enteric tract to digest food is very limited. The lability of the body temperature is marked due to immaturity of the temperature-regulating mechanism; oscillations of as much as thirteen degrees have been observed, in response to fluctuations in the temperature of the surrounding air. The tissues have a lessened ability to hold their proper moisture content, and dehydration is easily induced. Respiration frequently is feeble and inconstant. The defense mechanisms against infectious disease are underdeveloped, and infections which would prove relatively innocuous for the term-born infant frequently result disastrously to the premature. The body tissues are not only smaller in quantity in the prematurely born; they contain smaller stores of the substances essential for the normal function and growth of the organism. This is especially important in the case of lime and iron, and the vitamins. To augment these deficiencies, the relative rate of normal growth of the premature is much greater than that characterizing the infant at term, and the caloric requirements are correspondingly greater at the earlier period

of development. These requirements often are so great that they cannot be met quantitatively through the usual nutriments (e. g., human milk) in amounts which can be ingested by the premature.

Before deciding on a regimen for the management of prematurely born infants, we should decide the criteria by which successful management is to be judged. A technic sufficient to provide mere sustenance of life is not enough; it will prove inadequate at the appearance of the first complication, and will not greatly enhance the likelihood of survival. Continuance of life, with gradual gain in weight and strength and eventual completion of the period of prematurity is possibly as much as one should expect to attain, and the end-result might seem to justify the procedures employed. However, if the premature infant's period of weakness and of requisite special care is prolonged much beyond the interval necessary to complete the normal intrauterine cycle, or if the infant at the end of that period has a poorer physique than would be obtainable under a different type of management, then the regimen employed should be criticized accordingly and efforts made to improve it. While we may never be able to devise a form of management which will equal the conditions of intrauterine life, our goal should be nothing less than that accomplishment.

During the last two months of intrauterine life the fetus normally adds rapidly to its bulk, gaining at the rate of approximately half a pound a week. Much of its storage of lime, iron and of vitamins is gained during that time. Is it possible to maintain these growth phenomena if the infant is born prematurely? To do so would require that it receive liberal amounts of a nutriment of such composition that all the needs of nutrition would be contained in a volume which the infant could ingest readily.

Human milk would seem to be the food of choice for the human infant. For the infant born at term, this is not questioned. For the premature, it is well adapted qualitatively to its needs; but about the quantitative aspects? Experience has shown that the prematurely born infant needs 150 to 250 calories per kilogram each day in order to thrive. To supply 150 calories per kilogram to a four pound premature infant, it would be necessary for him to ingest and utilize fourteen ounces of human milk a day. With a gastric capacity of from one-half to one ounce, it is next to impossible to attain that level of ingestion. An infant weighing only half this amount would offer a problem correspondingly more difficult. While either infant might survive on a feeding of unmodified human milk in as large quantities as



could be administered, definite advantage will accrue if the food value of such a feeding can be enhanced. Observations have been reported concerning two parallel groups of premature infants, members of one group receiving unmodified human milk, the others receiving human milk enriched through the addition of two-fifths of an ounce of evaporated milk to each ounce of human milk. The average daily gain of the first group was about one-third of an ounce, while that of the members of the second group was approximately three-fourths of an ounce. The physical well-being of the latter group paralleled its superior weight gain. Such a regimen would definitely shorten the period during which the infant must be considered and treated as premature. Dried milk has been employed as a reinforcement for human milk; a level teaspoonful per ounce of milk will add 40 per cent to the food value of the latter, without any appreciable increase in bulk. By some, sugars are employed as sources of extra energy; while this is justifiable, the use of milk products seems more rational, since the infant's needs are primarily for tissue-building materials, not sources of energy. During its period of prematurity its energy output is definitely reduced, its activities being primarily anabolic.

Human milk frequently is not available; while it is desirable, its use as a basis for the premature's diet is not imperative. However, there is much to be said against the use of a milk dilution cow's milk formula as a substitute, since the latter has the inherent faults of human milk for the premature, and lacks many of its merits. However, if an acidified whole or partially skimmed cow's milk formula is used, without dilution and with an appropriate addition of carbohydrate, the bulk nutritional needs of such an infant can be met both as to volume of feeding and as to its digestibility. Such a feeding may be further reinforced with dried milk, if desired.

Because of the infant's potentially rapid rate of growth, and its reduced storage of minerals and of vitamins at the time of birth, it is most desirable that the diet be made complete in these respects at the earliest possible moment. The omission of such nutritional essentials might not lead to a fatal issue, but their inclusion would aid in the avoidance of the frequently encountered rickets of the premature, as well as other analogous disturbances. Three agents are useful as adjuncts in the diet of the prematurely born,—a suitable concentrate of Vitamin D, preferably combined with Vitamin A; some potent preparation of Vitamin C; and some form of assimilable iron. Viosterol, either alone or combined with halibut liver oil, is recommended for the first; a

suitable daily dosage would be fifteen to thirty drops. Strained, diluted orange juice, a teaspoonful daily as an initial dose, will meet the needs for Vitamin C. Iron is utilized well in the form of ferric ammonium citrate; a teaspoonful of a five per cent solution may be added directly to the total day's milk feedings, or divided between them. No unnecessary delay should occur in instituting these dietary supplements; after the stringent needs of the first week have been met, the dietary adjuncts should be introduced one at a time into the daily diet.

The weak infant will not be able to take its feedings from a nipple. Some who specialize in the care of prematurely born infants advocate the use of tube feeding from the start; the catheter is passed through the nostril, and about four inches farther. The food, introduced through the catheter by means of a Dakin or similar syringe, escapes into the esophagus and passes without difficulty into the stomach. A simpler technic, and one attainable by any competent attendant, is to feed by means of a medicine dropper, the end of which is tipped with a short length of catheter tubing. The liquid is introduced into the corner of the mouth slowly and in small amounts; the material passes into the throat without active swallowing, and the infant is fed passively and safely. The total volume of the feeding will depend on the size and the demonstrated capacity of the infant; the smallest can take but half an ounce, while the larger infants may approximate the intake of the maturely born babe. Although feeding at intervals of four hours has proved applicable in the hands of some, usually it is thought better to offer feeding every two hours for eight or ten feedings a day, in order to increase the total food consumption. During the administration of a feeding and for fifteen or thirty minutes following it, the infant should lie in a semi-recumbent position.

To avoid transfer of infection to the infant, it is essential that it be handled as little as possible, and that but few attendants come in contact with it. The attendant should be free from contagion of any degree, and as a further safeguard should wear a face mask and a clean gown over her ordinary clothing. To facilitate easy care, the clothing of the infant should be very simple. During the first few days, it may be sufficient to keep it swathed in cotton batting. After a few days, a simple shirt may be worn, instead of diapers, and gauze or cotton pads may be placed loosely in suitable positions. A loose wrap-around may be fashioned from cotton quilting; the infant can be laid on this, and the ends secured over the body with tapes or pins.

The maintenance of suitable temperature and humidity of the surrounding atmosphere is most important. As an aid in this accomplishment, and also to protect from contagion, the infant should be quartered in a room separate from the rest of the family; the room should be free from any unnecessary furnishings, sunny, and equipped with provisions for regulating both the temperature and the moisture content of the air. Recent observations lead to the conclusion that the welfare of the premature infant is dependent more on the maintenance of suitably high humidity than on the degree of temperature. With air which necessarily is dry, the temperature near the infant must be kept at 90 to 95 degrees. On the other hand, with 65 per cent relative humidity, a room temperature of 75 to 80 degrees is usually ample. During the first few days of life, before the adequacy of the control of environmental temperature has been established, the infant's temperature should be taken every four hours; later a daily temperature record may be ample, if the room temperature does not fluctuate. Since a subnormal temperature seems to characterize the state of prematurity, it is not considered wise to use artificial means to force the infant's temperature to the level of the normal term-born infant; if it remains slightly below that point, the attendant should be satisfied.

To attain a desirable degree of humidity during the winter months, it is necessary to add much water vapor to the air; the more rapid the change of air in the room through ventilation, the greater the necessary addition. If steam heat is available, this is accomplished simply and effectively by installing a steam vent in the radiator, and permitting steam to escape continuously in suitable amounts. Where this arrangement is not available, the most effective substitute is to keep in the room a pan or kettle of boiling water on a stove or hot plate at all times. With suitable humidity, the air will feel distinctly damp, and moisture will collect on the walls or any cool surface. A relative humidity of 60 to 65 per cent is to be maintained if possible. The use of a hygrometer is desirable, so as to avoid fallacious opinions as to the moisture content. Recent observations, comparing the progress of prematurely born infants living with and without controlled conditions of humidity, show that the group receiving the former type of care gained weight more rapidly, had fewer gastro-intestinal disturbances, and fewer infections than observed in the children living under conditions of uncontrolled humidity. This measure seemed especially important for infants weighing less than four and one-half pounds.

With an electrically heated incubator especially designed for the purpose, temperature regulation of the premature infant's environment is greatly simplified. Since such refinements of care necessarily are reserved for the few, it is comforting to know that improvised incubators can be made to serve the purpose satisfactorily. A simple apparatus consists of two boxes; the smaller is somewhat larger than the infant, and contains its bed; this is suspended within the larger, with provisions for the free circulation of air over every surface of the crib-box. A trap-door in the larger box near its bottom makes it possible for the attendant to introduce sources of heat, such as hot water bottles, sand bags or bricks, an electric pad or incandescent light. By draping sheets over the top of the larger box, heat loss may be regulated until a desirable environmental temperature is attained. A thermometer should be suspended at a point near the infant, and its readings noted frequently; the use of a wet-bulb thermometer in addition will serve as a check on the humidity level.

By definition, an infant may be considered clinically premature if its birth weight is five pounds or less; the characteristics of prematurity will persist in some measure until the weight and development characteristic of the normal term-born infant are attained. These criteria will be used in determining the point at which the physician can properly dispense with the special precautions desirable for the management of the premature babe, and permit a gradual substitution of the usual regimen for the normal infant.

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#### THE PRESENT STATUS OF SEROTHERAPY IN WHOOPING COUGH, MEASLES, SCARLET FEVER, AND DIPHTHERIA\*

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The above diseases have been singled out for discussion, because, in each instance, preliminary experimental work has progressed to a point where it seems possible to draw fairly definite conclusions regarding the effectiveness of some of the more recent serologic methods advocated for their control.

Whooping cough has long been recognized as one of the most serious diseases of childhood. In 1932 there were about 300,000 cases reported in the United States with 6,000 deaths. The mortality rate for infants is about fifteen per cent. Whooping cough causes as many deaths as measles and scarlet fever combined. Obviously, therefore, any method which gives promise of pro-

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tection against such a dangerous disease should receive the attention of the medical profession. There is now available on the market a vaccine, prepared according to the directions of Sauer, which, it is claimed, will produce an immunity to whooping cough for a number of years. Each batch of vaccine is made from five to seven recently isolated strongly hemolytic strains grown on medium made with fresh defibrinated human blood. Each cubic centimeter contains about ten billion bacilli, and a total dosage of eight cubic centimeters is given. One cubic centimeter is injected subcutaneously into the deltoid region of each arm; a week later one and one-half cubic centimeters are injected into the biceps region of each arm; and a week later one and one-half cubic centimeters into the triceps region of each arm. Rather uncomfortable reactions occasionally occur which last for a few hours, but we have not seen any in our group of patients that have been sufficiently severe to cause alarm.

Out of 394 children vaccinated in this manner, Sauer has had opportunity to observe twenty-nine of them undergo intimate household exposure without contracting the disease. One hundred sixty-two have had accidental exposure and have escaped. Apparently, a time interval of about four months must pass after the injections are given before immunity becomes dependably established. Since the period of highest mortality is infancy, it is recommended that the vaccine be administered in the second half year of life.

It is noteworthy that Dr. Sauer makes no claim for the vaccine as a therapeutic agent. The manufacturers, however, state in their literature that it is of definite value therapeutically, basing this opinion, I presume, upon the experiences of Madsen in the Faroe Islands during epidemics of whooping cough in 1923 and 1924, and in 1929. Madsen vaccinated 3,926 individuals with a total dosage of twenty-two billion bacteria, and had a group of 1,073 non-vaccinated individuals to serve as controls. The mortality rate in the vaccinated was only one-sixteenth that of the non-vaccinated and in the 1929 epidemic 458 of the vaccinated escaped infection altogether, while only eight of the non-vaccinated failed to contract the disease.

There is also available on the market another form of vaccine which is advocated for both treatment and prevention of whooping cough. This vaccine is referred to as Krueger's *Hemophilus pertussis* endoantigen. Its method of preparation was first described by Krueger, Nichols, and Frawley in 1933. Essentially the method consists of disrupting the bodies of whooping cough bacilli of high antigenic activity in a ball mill and ob-

taining the endocellular elements by ultrafiltration. The water-clear filtrate contains the antigen. Its claimed advantages are that the antigen is superior because it has not been altered by physical agents such as heat or chemicals, and that the vaccine is free from reactions following its use because the bacterial proteins and toxic filtrate have been removed. Each cubic centimeter contains the undenatured antigen from about ten billion organisms. Frawley reports a series of 505 children given a total of eight cubic centimeters of this form of whooping cough vaccine. Forty-nine of them have been exposed to whooping cough without developing symptoms. Thirty-one developed the disease in a very mild form. Munns and Aldrich used it in the treatment of 122 active cases and exposures. The dosage employed by these authors was only two and one-half cubic centimeters but they report that over 80 per cent of the children either did not develop whooping cough or had mild attacks. We have had opportunity to use the endoantigen in only one case—that of a child one year of age who had a moderately severe attack when treatment was begun. Daily injections of one cubic centimeter were given for nine days, when the disease abated so markedly that further injections were considered unnecessary. The injections were entirely without reaction.

From the evidence at hand it seems justifiable to conclude that Sauer's immunizing vaccine should be advised as a routine procedure for the active immunization of infants during their second half year of life, and that Krueger's endoantigen should be used for the treatment of active and exposed cases of whooping cough.

Measles, likewise, is a serious disease, particularly in early childhood. Not only does it carry a significant mortality rate, but also, it not infrequently is the precursor of most undesirable complications of which pneumonia and encephalitis are most to be feared. Today, it can be said with considerable emphasis, that it is the right of every non-immune child exposed to this disease to have the benefit of some type of preventive inoculation. Ample experience has accumulated in recent years to prove beyond question that measles can be attenuated or prevented altogether by suitable injections of immune human blood. Animal sera (Tunnicliff, Ferry and Fisher, and Degkwitz) have not proved satisfactory and will not be discussed further. Convalescent serum or whole blood, and adult serum or whole blood, of persons who have had measles, have been employed in this form of serotherapy. The blood of measles convalescents contains the highest titre of antibodies about the tenth to the thirtieth day

following the disease. Thereafter there is a gradual reduction to a stable level which persists throughout life. One attack of measles is almost certain to confer a lasting immunity.

Institutions, serum centers, and practices in cities are more likely to use serum than whole blood, since the amount required for injections is about one-half, and facilities are usually available for the easy preparation of the serum. In private practice, however, intramuscular injection of whole blood from the arm of the donor into the buttocks of the recipient offers a simple, inexpensive, effective method of measles prophylaxis which can be carried out as an office procedure. One or the other parent is nearly always suitable as a donor. The usual precaution as to lues, tuberculosis, or other illnesses should of course be observed. No citrate is necessary providing the transfer of blood is made expeditiously.

Sero-prevention results when immune serum or whole blood is given in suitable dosage not later than the fourth or fifth day after exposure, and sero-attenuation when the injection is delayed until the sixth to eighth day. No effect is observed on the course of the disease if blood is given after the onset of symptoms. Sero-attenuation is much the more desirable result to achieve in normal healthy children, since the occurrence of a mild attack of measles is followed by a lasting immunity, whereas the immunity induced by sero-prevention persists at most only a few weeks, leaving the patient susceptible to develop the disease at some subsequent exposure.

The dosage of serum recommended varies between three and ten cubic centimeters, the smaller amount being given to children under three years of age, and before or early in the incubation period of the disease. Whole blood is given in quantities twice that of serum. Many authors report using from twenty to forty cubic centimeters. Recently, McKhann and his co-workers have shown that a globulin fraction of the human placenta and its retained blood, contains sufficient antibodies to prevent and attenuate measles in exposed non-immune individuals quite as satisfactorily as does convalescent or adult immune serum.

In a recent epidemic of measles in Des Moines my associate and I have employed adult whole blood, convalescent serum, and placental extract in exposed cases. Most of the children, but not all, were exposed to a brother or sister in the home. Eighty-nine children were given from ten to fifteen cubic centimeters of adult whole blood intramuscularly in the gluteal region on the fourth to seventh day of exposure. Forty-eight of these

had definitely attenuated measles; thirty-five did not have measles at all; and six children had attacks that were considered to be unmodified. Pooled convalescent serum was used in thirty-three cases in doses of three to seven and one-half cubic centimeters. In twenty of these children no measles developed, and thirteen had attenuated attacks. Placental extract was used in sixty-one cases. This was the least satisfactory of the three methods. Very uncomfortable reactions were encountered, which were entirely absent with convalescent serum or whole blood, and considerably larger doses of the serum had to be used than was recommended by the manufacturer on the package. In twenty-seven of the children sero-attenuation resulted, sero-prevention in twenty, and unmodified measles in fourteen.

In summing up our conclusions regarding our experiences with measles prophylaxis we are of the opinion that convalescent serum is the ideal method, but that lacking this, adult whole blood provides a very satisfactory, inexpensive, simple, effective agent.

The present status of serum therapy in scarlet fever is difficult to evaluate. Since 1924, through the researches of Dr. and Mrs. Dick the following facts have been determined:

1. The etiologic agent has been established as a hemolytic streptococcus.

2. A toxin has been available for producing active immunity.

3. An antitoxin has been prepared from the serum of horses for the prophylaxis, treatment, and diagnosis of the disease. In spite of such complete means for the control of a disease, these measures have not become popular with the rank and file of practicing physicians. There are many reasons for this attitude. In the first place scarlet fever, in the last ten years, in most communities, is a very different disease from what it used to be. My own experience has been that the majority of cases are so mild as frequently to be difficult of recognition. Severe cases and serious complications have been rare. In fact, in our own practice, our records show no deaths from this disease in the last twelve years and no case has been serious enough to require antitoxin. Under such circumstances it has hardly seemed worthwhile to put children through a serum therapy which often causes reactions more uncomfortable than the disease itself. If scarlet fever should occur in our community in epidemic or virulent form I would then feel negligent in not recommending the protection these measures offer.

There can be little doubt but that active immunization when carried out according to the



directions of the Scarlet Fever Committee which requires the injection of a total dosage of 80,000 to 100,000 skin test doses of potent toxin, does bring about an immunity, at least to the rash and toxic phases of scarlet fever, which lasts in 90 per cent of the cases for at least six years. What effect such an immunity has upon the bacterial invasion of tissues is not so easily determined. Parenthetically, comment might be made upon public health regulations which require a month's quarantine for a tonsillitis accompanied by a rash, but streptococcal sore throats of similar potentialities for serious consequences unaccompanied by a rash are entirely ignored. Active immunization has not become a popular public health measure among physicians, probably because five injections at weekly intervals are required, and because uncomfortable reactions do occur.

The therapeutic use of antitoxin in severely toxic cases of scarlet fever is generally admitted to be of value. Its effect upon the mortality rate may still be debated, but of its ameliorating effect upon the toxic symptoms there can be little question. Most observers, too, have reported a lessened incidence of complications in the treated group, but this has been by no means a unanimous conclusion. Scarlet fever antitoxin, like diphtheria antitoxin, is most effective when administered early in the course of the disease. The two diseases have this difference, however, that diphtheria bacilli are saprophytic and do not live after their toxin has been neutralized by antitoxin, whereas scarletinal streptococci may continue invasion of tissue in the "bacterial phase" of the disease even though their toxins have been neutralized. Antitoxin has no effect upon the septic processes of scarlet fever.

Convalescent serum is used by many physicians both prophylactically and for treatment in preference to antitoxin. The usual prophylactic dose is ten cubic centimeters and the therapeutic dose forty to eighty cubic centimeters. The obvious advantage of convalescent serum is its freedom from unpleasant serum reactions. It has the disadvantage of being difficult to obtain outside of institutions or cities. In Chicago the Samuel Deutsch Serum Center at the Michael Reese Hospital prepares and maintains a supply which is available for physicians who wish it.

In summing up the situation as regards scarlet fever it seems reasonable to draw the following conclusions:

1. Culturing of nose and throat for recovery of the hemolytic streptococcus is not widely used in private practice.

2. The Dick test, if done correctly in all details, is an accurate means of selecting persons susceptible to scarlet fever.

3. Active immunization by the Dick method is a valuable procedure for nurses, internes, and other persons intimately exposed to scarlet fever in contagious hospitals, and for institutions housing large numbers of children, but is not popular in private practice because of the number of injections required, the occurrence of uncomfortable reactions, and the present mildness of the disease.

4. Convalescent serum or strict isolation are the most desirable prophylactic measures.

5. The majority of cases of scarlet fever need only symptomatic treatment. For the more severe cases the physician has convalescent serum, scarlet fever antitoxin, and transfusions with immune blood as his therapeutic armamentarium.

6. Two-tenths of a cubic centimeter of scarlet fever antitoxin injected intradermally in the midst of a rash causes local blanching if the rash is due to scarlet fever. (Schultz-Carlton reaction.)

Diphtheria is a fast disappearing disease. All that is required to eliminate it entirely is to push active immunization to the point where 50 to 75 per cent of the child population of all communities and all sections of cities have been immunized. That this goal will eventually be realized there can be little doubt. The chief obstacles to overcome are lethargy, ignorance, and opposition on the part of the parents.

Shepard conducted an illuminating inquiry among families of the western states concerning diphtheria immunization. Of a total of 6,245 children only 24 per cent were immunized. Of 1,266 of the children who were immunized 60 per cent had been done in school clinics and only 26 per cent by private physicians; 1,958 families stated their reasons for not having their children immunized. Fifty per cent of this number gave reasons which could be classified under lethargy; 20 per cent under ignorance; 21 per cent under opposition; and 6.7 per cent felt they could not afford it. Certainly such a survey furnishes much food for thought for the private physician. The responsibility for failure of immunization in the majority of these families obviously is due to failure on the part of someone to sell them the idea. Who else but the family physician has such a good opportunity to urge immunization for each child by its first birthday?

Diphtheria immunization has been under way in this country for over fifteen years. The first immunizing agent used was toxin-antitoxin con-

taining 3 L + to 6 L + doses of toxin partially neutralized by antitoxin. This product was inclined to give rather sharp reactions. In 1922 following the suggestion of Park, the toxin was reduced to 0.1 L + dose without a loss of immunizing ability, but with a marked decrease in reactions. In 1924 antitoxin containing goat or sheep serum was used to neutralize the toxin in place of horse serum which was reported by some observers to be sensitizing children. Three weekly doses of this toxin-antitoxin gave a negative Schick test in from 70 to 90 per cent of the cases.

In 1923 Ramon, at the Pasteur Institute in Paris, France, was the first to use toxoid. Toxoid is diphtheria toxin completely detoxified by formalin and heat. It contains no serum and therefore is free from danger of sensitizing. As an immunizing agent it is definitely superior to toxin-antitoxin. It has the further advantage that only two doses are required instead of the three or four necessary with toxin-antitoxin. The interval between injections should be at least two weeks. A toxoid containing between five and ten antigenic units per cubic centimeter should produce a negative Schick test in about 95 per cent of the cases. The one disadvantage of toxoid is its tendency to produce uncomfortable, but not serious, reactions in older children and adults.

Park added 0.2 per cent alum to toxoid and found it to be more effective than toxoid alone. Havens and his co-workers in Alabama have completely precipitated the toxoid by the addition of 2.0 to 2.5 per cent of alum and find that one injection of this material yields results equivalent to two injections of unprecipitated toxoid. The explanation advanced for the increased effectiveness of precipitated toxoid over pure toxoid is the relative insolubility of the former. It is absorbed slowly, thus exposing the tissues, to a longer stimulation with the specific antigen. Of 613 children who were given a single one cubic centimeter dose, 96.6 per cent showed negative Schick tests two to four months later. In alum precipitated toxoid the ideal has been achieved in an immunizing agent. Only one dose of a small amount of material is required. The injection is practically painless; no unpleasant reactions occur; and a life-long immunity is acquired in a high percentage of the cases in a relatively short period of time after the injection.

It ought to be, and is, the conscientious duty of every physician in Iowa to see that every child in his practice receives the benefit of this simple procedure sometime during the second half year of life, but certainly by its first birthday.

## SENSE DEFECTS OF CHILDREN\*

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Ten years ago Dr. John Dewey said, "what the best and wisest parent wants for his own child, that must the community want for all its children."

Today, the wisdom and the truth of these words have become more obvious, because if the care of our youth were intelligent and efficient, we should expect to find each successive generation becoming more and more free from the problems, difficulties and annoyances that previous generations had to contend with; but, instead of this being the case, many serious problems are increasing. Statistics show that 15,000 murders and homicides are committed each year, and that each year, 140,000 persons between ten and thirty years of age become infected with dementia praecox, and are confined to institutions for the insane.

One group of persons condemns alcohol as the basic cause of all our troubles, another accuses the movies, while a third group points an accusing finger at the schools and churches. Mass opinion has never been able to give an intelligent analysis of any problem. Untrained mass opinion has always been skeptical of the findings and the methods of science.

To attribute the cause of our social problems to alcohol or the movies, is superficial, and no more intelligent than it would be to attribute an epidemic of typhoid fever to alcohol, movies or schools, or any other agency, which might be merely an accidental agent in spreading the infection, but in no way the specific cause of the disease. We cannot point to any one cause. There are many social factors, external to the child, that enter into the problem as contributing causes, and likewise numerous biologic or physical conditions, which must be considered, such as proper functioning of the endocrine glands, nutrition, sense defect, general health, and nervous conditions that are purely psychologic. Brevity makes it necessary to confine this discussion to one of the many problems of childhood, namely, sense defects.

Gustav Le Bon, the eminent social psychologist, emphasizes the fact that it takes a long time for public opinion to crystallize into tradition or sentiment, but once established, it is very hard to change. Perhaps, this accounts for the opposition to the appointment of school physicians. Critics say it is paternalism, and that it is the parents' business to look after the health of their children. Just as public opinion now objects to a closer relationship between the physician and the school, likewise, some years ago, it protested introducing



the school cafeteria, but today, no one questions the value of the school lunch.

It is the contention of the writer that if we wish to improve the social order, we must do so through improving the children physically and psychologically, and because of the indifference of many parents due to ignorance or misunderstanding of the needs of their children, this can best be accomplished by physicians working in cooperation with the schools. It is only through a plan of this kind that we can educate parents and teachers to comprehend the far-reaching effects of latent defects which should be recognized and treated in early childhood. The importance of this is expressed by Dr. H. H. Goddard, professor of abnormal and clinical psychology, Ohio State University, who has said "appealing to the motive of fear is one of the most dangerous procedures in the case of a nervous child. There is no question that many of the patients in our hospitals today, had the foundation for their insanity in school. Not only is that true, but it is also true that we can detect what might be called incipient insanity in many of the children in attendance at the public school. We do not call it insanity, but psychopathic instability, or mild mental disturbance."

#### NUTRITION

With the recent research in the field of vitamins, has come more adequate knowledge as to the relationship between general good health and proper nutrition, and consequently, the indirect effect of poor nutrition as a contributing cause of sense defects of children. This parallel existing between physical and mental development was recognized by Bouchlet as early as 1891. More recent investigation such as a study made in Detroit, Michigan, which included 80,662 children, confirms his theory, that "dull children are shorter than precocious children of the same age," and that "dull children are lighter than precocious children." This same condition between actual progress and the nutrition of the child as represented by the weight and height relationship to mental ability, was proved there in the Detroit study.

Regarding the problem of nutrition, Dr. William R. Emmerson, professor of pediatrics, Tufts Medical School, Boston, Massachusetts, says, "we save our consciences by a formal inspection of children in a hurrying life, but this sort of examination with children fully dressed reveals little about their general nutrition. A beginning has been made in the wider adoption of the practice of weighing and measuring school children, but it should be followed by the incorporation of a board nutrition program in the school systems."

Dr. Emmerson states that in 1924, more than one-third of all children of the United States were suffering from undernourishment. Today, as the result of the depression, this number would be greatly increased.

What are the permanent effects of this situation? Annual experiments performed by Mendel, Stuart and Jackson, show that the organism has wonderful powers of recuperation and remarkable ability to make adaptation in cases in which recovery is limited, yet if malnutrition continues throughout the normal period of growth, there results an actual stunting, the vital organs remain undersized, and the length of the body is lessened.

Blanton reports a study made in Trier, Germany, during the World War as to the effect of malnutrition in children as follows: "While the percentage of stuttering, stammering and other speech defects did not increase, there was a marked increase in poor lisping, slurring of speech, due to retardation or interference of the fine coordinations necessary for good speech." Specific changes noted were, a lack of nervous and physical energy, inattention, poor and slow comprehension, poor memory, and a general restlessness.

Poverty is not always the cause of malnutrition. It is the function of the physician to determine the various causes. Frequently, these may be found to be physical defects or inflammatory processes, such as adenoids and diseased tonsils, or over-fatigue, rather than lack of food. Over-fatiguing is perhaps one of the most important. The constantly increasing activities and interests of present day life frequently exhaust the energy of the child. In addition to those; we should look for faulty food habits, as well as improper food.

Dr. C. E. Winslow, professor of public health, Yale Medical School, states that defects of hearing are less common than defects of vision, but are obviously of peculiar importance in relation to school work and demand immediate and serious consideration because of the acute nature of the trouble which is frequently involved. This statement pertains to cases that are not congenital. Dr. H. Marshall Taylor, in 1933, presents a study of the prenatal influence of the use of quinine administered during labor. He cites the following: A multipara brought her four year old child to me with the following history. The child had previously been examined by various otologists, all making a diagnosis of a complete nerve deafness. My examination showed a normal external ear, the drum membrane showed the usual light reflex, no retraction, no displacement of the umbo or malleus. The vestibular responses with the whirling and caloric tests were normal. The

child's general physical appearance showed every evidence of health, all reflexes and gait normal. A negative Wassermann test of the blood of the father, mother and child was obtained, and there was a negative history of any family deafness and consanguinity. The mother stated that she had previously given birth to three perfectly healthy children, after normal labors. With the last child, after four hours of labor, her physician gave her castor oil, followed by three ten grain doses of quinine given an hour apart. Three hours later she was delivered of a six pound boy. Half an hour after the second dose of quinine, the mother stated that she complained of a severe headache, a roaring in her ears, a severe itching, and she described a breaking out on her face, chest and extremities of large purplish swelling; in other words, an urticaria. The mother stated that her deafness persisted for some six weeks, otherwise her convalescence was normal.

Dr. Taylor quotes King and Callhour as reporting cases of fatal deaths caused by the use of ten grains of quinine, and presents evidence secured by other authorities that quinine is found in the urine of the fetus six to twelve hours after the last dose was administered to the mother. He states that King has also found quinine in the brain of the fetus in appreciable quantities. Knowing this to be so, and since Politzen has shown that quinine has a predilection for the auditory nerve and that subjective noises and deafness take place in from one to two hours after the injections, is that not a field that demands consideration, and is not our lack of sufficient information frequently a contributing cause of congenital deafness?

The symptoms of abnormal conditions of the organs of hearing are earache or discharge from the ear and defective hearing. The cause may sometimes be extremely simple, such as the presence of hardened wax in the outer ear. More serious types are usually due to conditions of inflammation in the middle ear, which is usually due to infection with bacteria which have entered through the eustachian tube from the nose and throat. Such infections are very dangerous, and may prove fatal if neglected. Any severe earache that continues for more than twelve hours should be reported to a physician. Frequently, there is a direct relationship between diseased tonsils and adenoids and defects of hearing, because they furnish a continuous source of direct infection and also tend to lower the vital resistance of the child. Of course, diseased tonsils and adenoids are but one of many possible causes of defects of hearing. Dr. Shambaugh, under the auspices of the National Research Council, reports a study

made of 5,348 children, listing 3,334 as congenitally deaf. Of the remaining 2,014, who had acquired deafness, it was found that 1,234 or 61 per cent had acquired it before they were three years of age. According to this report, very few become deaf between the ages of ten to twenty years. This report lists as frequent causes of deafness, meningitis, measles, scarlet fever and influenza. It also indicates the results of intermarriage. In 146 cases of congenital deafness, the parents were first cousins; in ninety cases, the parents were second cousins; in thirty-seven cases, third cousins; and in twenty cases, fourth cousins.

#### ENDOCRINE GLANDS

Until recently, the importance of the endocrine glands in building general health, a balanced personality and efficient sense organs was not given adequate recognition. Dr. Clendenning tells us that definite facts about these structures were learned first from their diseases. It was observed that frequently, a swollen thyroid gland was accompanied by staring eyes and a general tremor of the muscles with a reflex pulse rate. In certain children where the thyroid gland was lacking, normal growth, both physical and mental failed to take place. In 1886, a French scientist discovered that in tumors of the pituitary gland, an enormous overgrowth of bone occurred, producing so-called giants. Since then, we have determined, in general, that the endocrine glands are directly related to growth, nutrition, sex, gland secretion and involuntary muscle control. This being true, is it not possible that more research will show further relationship between these glands and the sense defects of children? Knowing as we do today, the effect of the thyroid gland upon the eye and involuntary muscle control, should not the endocrine glands receive more attention as a possible contributing cause in some cases of defects of vision.

In a general way, I have endeavored to indicate a few of many indirect contributing causes of sense defects of children. Of course, there are other causes, too numerous to mention, such as those resulting from adverse prenatal conditions that are hereditary and congenital. Summed up, it is well for us to remember the importance of the central nervous system and in considering the problems of sense defects, include any and all possible contributing causes that may be related to it. Dr. Clendenning emphasizes its importance when he says "without it we should be sensitive, sightless, soundless and motionless masses of multiplying protoplasm."

In a more objective way, let us now consider briefly some specific problems of sense defects



of children. The regular and systematic examinations of school children by school physicians which is now commonly carried on in many school systems, have given us a clear idea of the prevalence of physical defects among children and the types that are common. Among these are defects of teeth, eyes, hearing, posture, tonsils, adenoids, swollen glands, speech defects and various forms of nervous instability, all of which may be direct or indirect contributing causes in the problem of sense defects of children.

Brevity makes it necessary to confine our discussion to only a few of these, namely defects of sight and hearing. Defects of vision are frequently not noticed among very young children, but the increase during the period of school life and the general results upon the health, happiness and school standing of the child are serious and far-reaching. Headache, abnormal fatigue and nausea are frequently the results of the attempt of the child to read and study with uncorrected defects of vision. If eyestrain continues, the eyes often become inflamed and laden with crusts. I cannot urge too strongly, the importance of providing relief, because if neglected, the stooping and strained position adopted by the sufferers in the effort to see clearly, will produce abnormalities of posture and complexes that lead to an unbalanced emotional nature. Neither teachers, pupils or parents should ever react toward the child with defects of vision in any way that suggests the knowledge that he is different from other normal children.

It is hard to convince parents that their children need attention. Often they refuse to heed the advice of the physician, because they do not wish to mar the beauty of the child by having him wear glasses, or because symptoms not being obvious, they doubt the diagnosis of the doctor. In this respect we must carry on educational work among parents, until they realize that every child who has habitually sore eyes, inflamed eyes, or eyelids, who squints or blinks, whose eyes ache in strong light, who suffers from headache, who cannot read writing on the blackboard easily, who must hold a book less than one foot or more than fifteen inches from the face, or who must hold the head in an abnormal position when reading, should be promptly examined by a competent physician.

#### HEART DISEASES IN WORKMEN'S COMPENSATION LITIGATION\*

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The crushed body of one of defendant company's drivers was found within the line of trail

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made by the wheels of the automobile operated by decedent. He had been run over by his own truck. An autopsy disclosed that the deceased had been afflicted with chronic myocarditis of long standing. Physicians testified that this condition was one which might at any time cause the victim to faint, or cause sudden death, while the patient might not know that there was anything wrong with him. It was the defendant's contention that an attack of heart failure due to natural causes afforded the only rational explanation of the loss of control of the truck and the falling from the seat. The commission, however, found that the deceased had come to his death by reason of his employment, because on the morning of the accident, he had apparently been in excellent health and in good spirits. The case was appealed.

Judging from the reasoning of the commission it seems that apparent good health prior to an accident raises the presumption of an industrial calamity rather than that of culmination of the pre-existing disorder from natural causes, provided there is some evidence that the injury was sustained not only during the working hours, but also by reason of the work, and that the pre-accidental ailment had been aggravated thereby. Commanding top wages, raises in salary just prior to the fortuity, steadily working for the same employer over a period of years and without interruptions, examinations by company doctors and being found healthy before entering upon the employment, taking out life insurance at about the time of the accident, and other items may be of value in fastening liability upon the employer. The closer in time to the industrial misfortune the fact of apparent good health is found, the greater the persuasiveness of the employment having disabled the workman. Even the conceded existence of a pre-accidental infirmity is not incompatible with apparent good health. Slight defects tend to negate non-compensability. Furthermore, the infirmity may not have interfered with the employment. A compensable aggravation may be found to exist where because of medical treatments, or natural remissions, a progressive heart disease has become temporarily stationary, or improved, at least for a reasonably short time before the accident happened.

The absence of an industrial vulnerating force, likely to cause death, or disability, is in principle fatal to an award in favor of the claimant, since the circumstances point directly to the culmination, independent of the employment, by the heart disease. Insufficiency of strength of penetration into the territory of the heart trouble by the industrial vulnerating force is also a ground for refusing compensation. Here, the issue often

turns about industrial accident, physical depreciation of the employee's body, and culmination, unconnected with the employment, of the ailment. Where disability or death could also have occurred at any time from wear and tear or from natural causes, irrespective of the workman's duties, the amount of time elapsed between the attack of the alleged industrial traumatic force and the subsequently appearing disability, is a yardstick used by the judiciary. The interval of time between cause and effect may have been:

1. Comparatively long—There were no outward manifestations of any disability due to heart disease during the span of time elapsed.
2. Comparatively short—
  - a. There is nothing to suggest disability.
  - b. The full clinical picture of heart failure manifests itself instantaneously, or nearly so, after the trauma has ceased to act.
  - c. The picture is filled with some signs of sickness, not amounting to disability.

Possibilities 1 and 2a are judicially interpreted as evidence of insufficiency of the vulnerating force and of recuperation. The lapse of time makes causal connection with the employment too speculative to warrant compensation. Possibility 2b, on the other hand, leads often to the conclusion of an industrial aggravation—injury. The suddenness of death, for instance, points to a comparatively strong traumatic influence upon the heart, which prior to the accident, had been apparently in fairly good condition. While there exists contemporaneousness of an industrial force and of a natural cause, the claimant is given the benefit of the doubt. Compensation is awarded. Possibility 2c, finally, has been found not to justify compensation. The vulnerating force could not have been more than mere wear and tear of the employee's body; in the eyes of many courts an inevitable hazard which the workman, while engaged in industrial enterprises, must bear without monetary recovery just as the employer does in regard to his resources. The injury is rather occupational than accidental.

Of the different categories of accidents the "falls" needs some special attention. Signs of forewarnings, existing just prior to the fall, a tightening oppressive sensation, an unusually marked feeling of weakness, or of impending dissolution, indicate that the fall was not industrial in character, but rather due to natural causes. Vice versa, the absence of premonitions at that moment makes the accident somewhat more likely. In addition, outcries and attempts of the victim during the fall to save himself, or to break the force of the fall, support the inference that the

employee was conscious during the events, and that the fall occurred by reason of his duties.

Mental excitement may constitute an industrial traumatic force, if the cause of the mental disturbance is uncommon. Vice versa, causes of excitement of common occurrence in the victim's employment, do not lead to compensability, particularly when normal activities have been taken up after the excitement has stopped; but, the combination of some other industrial force with excitement due to common occurrence will justify and award. The "time principles," discussed above, must be applied.

In cases of overexertion the controversy of accident, culmination independent of employment, and depreciation reach the peak of intensity. Overexertion is, of course, compensable; but what is overexertion? The pivotal point is the adaptability of the heart to the suddenly changing demands upon its pumping power, actual and reserve, and its ability to cope with the extra amount of work so that no damage ensues. Two categories of cases suggest themselves. Where strain is unusual, the disability, or death, is due to the employment. Attempting to lift an object weighing about 6,000 pounds entitles the claimant to an award for fatal heart failure; but, where the workman has performed the same task prior to his alleged overexertion without visible damage to the heart, no more than mere wear or tear might reasonably be assumed to exist in many cases. Yet, it cannot be denied that under such circumstances an undue amount of reserve pumping power has been drained so that the fatality occurs at a date earlier than in a situation of mere physical depreciation. The concept of physical wear and tear being so relative, courts have rendered upon almost identical sets of facts, decisions which are irreconcilable.

So far the discussion has dealt with conditions of the heart in which, because of the advanced state of some peculiar pathology, a sudden death has been likely to occur at any time and independently of the employment. In certain classes of after effect aggravations, however, the principles so far developed receive a greater elasticity of interpretation. Where, for instance, decompensation is an issue, the industrial vulnerating influence may not become manifest at once. The attack of the vulnerating force is seemingly over. An injury other than to the heart is conceded by the insurer. As a general rule, remoteness in time creates the inference of remoteness in cause because of the probability of recuperation. This assumption, however, is not justified when heart trouble appears, or reappears, soon after the injury was inflicted. Thus, a "fall-overexertion"



accident has been held to have caused a compensable decompensation of the heart which prior to the accident had been apparently adjusted by nature's way. However, even if a heart disease manifests itself a considerable time after the accident, compensability cannot safely be excluded in all cases. Recuperation is marked by the normal progress of healing and by freedom from complications likely to affect the heart; but, if there are intrinsic causes, complications not due to outside influences, the chain of proximate causation is not interrupted, since recuperation does not exist. Close confinement, continuous lack of improvement, toxic conditions, burn-complications, blood poisoning, autointoxication, and so on, while hidden perhaps for a long time, exclude nevertheless non-liability of the employer.

To come back to the opening case. Upon appeal to the Supreme Court the award was sustained upon the ground that excitement, or strain, or both, incidental to the driver's duties while operating his truck, may at first have caused heart failure after which the fall and death resulted as probable and natural consequences.

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## REGIONAL ILEITIS

### WITH CASE REPORT

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Regional ileitis is a nonspecific inflammation of the terminal ileum and its mesentery, of unknown etiology, but with definite pathology and a typical clinical course. The condition was first described in detail by Crohn, Ginzburg and Oppenheimer<sup>1</sup> in 1932. Cases had been reported previous to this time, but the lesion was confused with hyperplastic tuberculosis of the ileum, actinomycosis and other infectious granulomata of the small intestine. Since its excellent description by these authors, many cases have been reported and it must always be considered as a diagnostic possibility in intestinal diseases. About ten or twelve cases are seen each year at The Mayo Clinic.

### PATHOLOGY

Regional ileitis is an inflammatory process usually beginning just oral to the ileocecal valve. The primary lesions are apparently oval mucosal ulcerations about one centimeter in diameter. Occasionally these ulcers are found in late cases proximal to the main hypertrophic mass. The cecum is not involved and the terminal few inches of the ileum are often normal. In the acute stage the terminal ileum is thickened and edematous,

the serosa is blotchy red and may be covered by a fibrinous exudate. The mesentery is greatly thickened and contains numerous hyperplastic lymph nodes. At this stage the mucosa is granular and superficial ulcers are common. The lumen of the ileum is slightly narrowed in the acute stage.

The disease is progressive and in the majority of cases the inflammation progresses into various stages of chronic inflammation. The length of the ileum involved in regional ileitis varies up to twenty or thirty centimeters or more, the lesion usually terminating sharply at or just proximal to the ileocecal valve where the most advanced pathology is usually found. The ileum in the chronic stage is greatly thickened, a mass is usually palpable and its wall is firm, thick and inelastic. The submucosal and, to a less degree, the muscular layers, show hyperplastic and exudative changes and small linear ulcers are common on the mesenteric side. The lumen of the ileum is greatly narrowed and the ileum proximal to the lesion is hypertrophied and dilated.

In the still more advanced stage the exudative reaction is replaced by a fibrostenotic process. Obstruction becomes almost complete and the ileal mucosa is atrophic. At this stage perforation into neighboring viscera is common, the sigmoid, cecum and abdominal wall being most frequently involved, resulting in intractable fistulas. Regional ileitis is occasionally associated with inflammatory lesions in the jejunum and colon. In an experience with sixty cases of ileitis, Crohn and Rosenak<sup>2</sup> have recently reported nine complicated by simultaneous inflammatory and ulcerative colitis. They state that these cases with multiple involvement of the colon and ileum have neither the clinical picture, the pathologic lesion, or the same medical or surgical treatment as regional ileitis. They believe the ileitis to be the dominant factor. Brown and Barger<sup>3</sup> have also found segments of the jejunum, ileum and colon involved in regional ileitis.

### MICROSCOPIC FINDINGS

Microscopically, no specific features are to be found in regional ileitis. All degrees of acute, subacute and chronic inflammation are present with varying predominance of polymorphonuclears, round cells, plasma cells and fibrous tissue. All layers of the ileum are involved, the submucosa showing most marked changes. The mucosa shows atrophy and ulceration and there is a loss of glandular elements. In the late stage the inflammatory reaction is more focal, these areas in the serosa grossly resemble tubercles. Giant cells are numerous in many cases but are not an essen-

tial feature. Often vegetable cells entrapped in ulcers become encapsulated in the wall by fibrous tissue. No bacteria are found in the wall of the ileum or the mesenteric nodes by any method of study, but Felsen of New York believes ileitis to be a manifestation of bacillary dysentery.

#### CLINICAL FEATURES

Regional ileitis usually affects young adults, the ages of ten to forty years being most common. Males predominate two to one. Four clinical groups of ileitis are recognized, the groups being indicative of the progressive inflammatory process.

The most acute stage is that of acute intra-abdominal inflammation. This stage clinically often cannot be differentiated from acute appendicitis. The chief symptoms and findings are generalized colicky pains and tenderness in the right lower abdominal quadrant. A history of cramps at intervals for one to two months can often be elicited and the symptoms are usually of longer duration than those of acute appendicitis. A fever of 100 to 103 degrees is common, the leukocyte count is elevated, vomiting and occasionally diarrhea are present and in some cases a mass can be palpated in the right lower abdominal quadrant. At operation some clear free fluid is present in the peritoneal cavity and the appendix is found normal.

The second stage is that with symptoms of ulcerative enteritis. The patient complains of lower abdominal pain and diarrhea with loose stools containing mucus, pus and blood. The temperature is rarely above 100 degrees, the patient shows mild anemia and loss of weight and a firm, movable, tender mass can usually be felt in the right lower quadrant. The duration of symptoms varies from several months to a year or two.

The third or stenotic stage is the most common, and symptoms are usually present from one to two years, consisting of evidences of subacute intestinal obstruction. The findings are cramps, vomiting, distention, visible peristalsis, firm mass in right lower quadrant, anemia and loss of weight. Fistulous communications may be present at this stage.

The fourth clinical group is that of persistent fistulas. These may communicate with the abdominal wall or a neighboring viscus, chiefly the sigmoid or the cecum. These intractable fistulas result from the drainage of abscesses, secondary to perforations of the ileum, into the mesentery or peritoneal cavity.

#### X-RAY FINDINGS

In regional ileitis the colon as visualized by a barium enema is normal unless deformities due

to fistulas are present. If barium is given orally the disease is characterized by the distended loops of the terminal ileum with a fluid level and by deformity and narrowing of the ileum. The delay in motility is often overlooked unless films are taken every hour.

#### DIFFERENTIAL DIAGNOSIS

In the differential diagnosis of regional ileitis the diseases most to be considered are; acute appendicitis, nonspecific ulcerative colitis, ileocecal tuberculosis, lymphosarcoma, sarcoma, Hodgkin's disease, actinomycosis and carcinoma. Many cases of regional ileitis were formerly confused with hyperplastic ileal tuberculosis.

#### THERAPY

The medical treatment of regional ileitis is palliative and supportive only. While a few early cases have been diagnosed by x-ray or by laparotomy, and the patients have recovered without surgical intervention, the majority progress to the advanced stenotic and obstructive phase. The most satisfactory treatment is surgical resection of the diseased segment and since the disease is benign the majority of patients make a complete recovery following resection. The best surgical procedure is division of the ileum well above and below the diseased area, the turning in of the ends and a side to side anastomosis of the ileum to the transverse colon or to the ascending colon, the latter being preferable in that no blind loop of colon remains. A second surgical procedure is a short circuiting anastomosis of the ileum to the transverse colon without resection of the diseased segment. However, the lesion may not heal and symptoms may continue. Occasionally a two stage operation is indicated with short circuiting and later resection of the diseased area, if the patient's condition does not justify a more radical procedure.

The following case recently came under our observation. The patient was a white male, twenty-five years of age, married, by occupation a dairyman. His past history revealed no serious illnesses, and no acute abdominal attacks. For about four weeks before admission the patient had abdominal cramps at intervals, the pain lasting from several minutes to three hours. He did not vomit, his bowels were regular and the stools normal. Three days before admission he had cramp-like pain in his epigastrium with nausea, but no vomiting. After a few hours the pain localized in his right lower abdominal quadrant but gradually subsided. Eighteen hours before admission he had right lower quadrant pain with some sore-



ness. The pain and tenderness persisted and became more severe before he entered the hospital on March 15, 1935.

Examination showed a well developed and nourished male in good condition. His temperature was 98 degrees, pulse 84, and respirations 18. His leukocyte count was 14,300 and the urine was normal. His general physical examination was negative. The abdomen showed direct and rebound tenderness in the right lower quadrant, maximum at McBurney's point, with rigidity but no mass. Peristalsis was active and the rectal examination was normal. A diagnosis of acute appendicitis was made.

At operation a moderate quantity of serosanguinous fluid was present in the peritoneal cavity. The tip of the appendix was bulbous and its serosa red. The terminal ileum from about eight centimeters proximal to the ileocecal valve was enlarged for a distance of fifteen centimeters. Its serosa was red, rough and granular and some fibrin exudate was present. The mass was about five centimeters in diameter and the ileal wall was thick and firm. The ileum above the lesion was not dilated or hypertrophied. The colon was normal. The mesentery of the terminal ileum was edematous and the nodes hyperplastic. The involved segment of ileum was resected between clamps well away from the diseased area. The distal end was turned in and the oblique proximal end was anastomosed to the ascending colon by an end to side technic. An enterostomy was done about twenty-four centimeters above the anastomosis and the tube was brought out through the omentum and a stab wound. The appendix was also removed.

On cut section the ileal wall was fifteen centimeters in circumference and one and one-half centimeters in thickness. The wall was firm and resistant. The mucosa was edematous and contained numerous elevated areas about two or three millimeters in diameter. One small superficial ulcer was present on the mesenteric side. A microscopic study showed an inflammatory exudate involving all layers of the ileum. The wall was edematous and infiltrated with polymorphonuclear and round cells. No giant cells were found. The diagnosis was regional ileitis of the first clinical group.

The postoperative course was uneventful. He had moderate fever and vomiting for forty-eight hours and some distention. Drainage was free from the enterostomy tube which was removed on the fifth day. The fistula was closed by the tenth day and the patient was discharged from the hospital on the fourteenth day. Aside from a small

wound abscess which developed soon after dismissal he has been entirely well since.

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### CLINICAL NOTES FROM THE COLLEGE OF MEDICINE

#### ACQUIRED STRICTURE OF THE MALE URETHRA

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Urethral stricture in the male is seen so frequently in office practice that its true significance and serious consequences may possibly be overlooked. Following a review of 108 patients with stricture observed at the University Hospitals during the three and one-half year period from July 1, 1932, to January 1, 1936, it became evident



Fig. 1. Large periurethral abscess complicating a stricture of the anterior urethra. Note the marked constriction of the urethra proximal to the abscess. Reproduced with permission of the *Journal of Urology*.

that the condition may not be regarded lightly, and that these patients require constant attention for the remainder of their lives. In other words, a stricture is never cured. Regular and adequate dilatation of the stricture at definite intervals was necessary to maintain sufficient urethral caliber. Where, for one reason or another, adequate dilatation was not carried out, distressing complications occurred, especially those associated with infection and back pressure. Such complications, namely: uremia, infected hydronephrosis and calculi, occurred in fifteen of the patients.

Even under adequate treatment the number and variety of complications is large. For example, chronic urethritis was present in all of the 108 patients. Small periurethral abscesses, multiplicity of the narrowings of the urethra and irregularities of the urethral lumen occurred in each of eighty-four patients with inflammatory strictures, and to a varying degree, but less extent, in the remaining twenty-four patients with traumatic strictures. Urinary fistulae were present in twenty-five of the entire group of 108 patients. Large periurethral abscesses occurred in twenty patients, uremia in nine, calculi in six, urinary extravasation in four and prostatic abscess in two patients. Four patients died from infection, a

2. The status of the bladder, ureters and kidneys must be determined. Is there uremia, infected hydronephrosis, or calculus, either renal or vesical?

3. The complete picture must be obtained not only before treatment is instituted, but also during its entire course by repeated examinations at sufficiently frequent intervals, so that changes in the situation are known definitely at all times. (Figure 2.) Are the dilatations which the patient is receiving sufficient to relieve back pressure? Is the local infection minimal, and are upper urinary tract complications occurring?

4. During the actual dilatation of the stricture, it must be borne in mind that infection is present



Fig. 2-a. Male, aged 47. Urethral stricture for 14 years, resulting from Neisserian infection 6 years before. Intermittent dilatation of stricture since onset with gradually increasing difficulty during urination. Note the two stones, X, X, and the stricture, and that the inflammatory process extends from the membranous urethra to just proximal to the meatus. The lumen shows the characteristic irregularity and fuzziness of an inflammatory stricture and is narrowed markedly just distal to the membranous urethra. The urethrogram shows the wide extent of urethral involvement and one of the complications of the middle tract, vesical calculus.



Fig. 2-b. Male, aged 53. Prostatic abscess complicating urethral stricture resulting from an old gonorrheal urethritis. Note the large portion of the urethra involved irregularly, the narrow communication with the bladder and the large dilatation in the region of the prostate. Filiforms curled into the abscess cavity during dilatation and the prostatic abscess was not diagnosed until urethrograms were taken, since it was draining well into the urethra. Figure 2-b is reproduced with the permission of the Journal of Urology.

mortality rate of 3.7 per cent. Therefore, consideration of the associated pathologic conditions in the urethra, and in the bladder and upper urinary tracts, is of extreme importance in the management of patients with urethral stricture, since these are the factors which determine morbidity and mortality.

When a patient with an acquired stricture of the urethra presents himself, four principles of diagnosis and treatment must be observed.

1. The exact state of the urethra and adjacent structures must be known. The presence of small periurethral abscesses, fistulae, prostatitis and epididymitis must be recognized. (Figure 1.)

in every case and that obstruction is due in part to the associated inflammatory process. Therefore methods of treatment which will minimize the spread of infection and also do away, if possible, with some of it, are indicated.

In carrying out the first principle of diagnosis and treatment outlined above, namely, the determination of the exact state of the urethra and adjacent structures, the urethrogram has proved to be of considerable value. The method of urethrography as carried out in this clinic has been described in a previous report.\* It consists essentially in the injection of thirty cubic centimeters

\*R. H. Flocks: The roentgen visualization of the posterior urethra. Jour. Urol., xxx:711-736 (December) 1933.



of an opaque medium into the anterior urethra and the exposure of a roentgenogram as the last five to ten cubic centimeters are being injected. The opaque medium consists of two parts: a base of gum tragacanth solution to give any viscosity desired to the fluid mixture, and a roentgen opaque material such as skiodan, hippuran, lipiodol or sodium iodide. Sufficient opaque material should be used to give the resultant medium an iodine concentration of ten per cent. The use of oily media is contraindicated in the presence of any marked degree of hematuria, and sodium iodide even when mixed with gum tragacanth may prove to be irritating. Skiodan or hippuran, however, are quite satisfactory for the purpose. During the actual injection the pelvis is tilted laterally, with the right side down, at an angle of thirty to forty-five degrees with the horizontal, the right thigh is flexed at an angle of forty-five degrees

dilatations of the urethra are readily seen and, therefore, intelligent therapy may be planned. Abscesses so discovered may be drained, trauma during dilatation may be avoided, and one can be sure that false passages are not being created. Also, it is possible to follow the progress of widening of narrow areas and the clearing up of irregularities of the urethral wall. Figure 3 shows a stricture involving the anterior portion of the pendulous urethra and illustrates the fact that a long portion of the urethra may be involved more or less irregularly by multiple strictures. Such multiplicity with considerable irregularity of large portions of the urethra is characteristic of chronic inflammatory stricture. Figure 4 shows the sharp demarcation characteristic of traumatic stricture. The remainder of the urethra is seen to be quite normal, but this is not the case if trauma and infection follow as a result of treatment. In that



Fig. 3-a. Inflammatory type of stricture. Examination showed a filiform stricture of the anterior urethra, but the urethrogram shows it to be of the inflammatory type. Note that more than half of the anterior urethra is involved by the process, as manifested by irregularity of the urethral lumen.



Fig. 3-b. Inflammatory type of stricture. Male, aged 52, with a stricture of the urethra resulting from an old gonorrhea. Note the irregularities in the proximal portion of the anterior urethra. The distal portion, although uninvolved, is not visualized, the narrow line of opacity being the catheter through which the opaque medium was introduced. Note in particular the small periurethral abscess on the ventral surface of the urethra.

with the body and the left thigh is extended. This position is chosen in order to obtain maximum visualization on the roentgenogram of all parts of the urethra without overlapping. The x-ray tube is centered over the symphysis. The resultant urethrogram gives a good visualization of the entire urethra, both anterior and posterior, and the bladder base.

Urethrograms made by this method were found to be valuable in the diagnosis, treatment and prognosis of patients with urethral stricture. The extent, location (especially in the case of multiple strictures) and the nature of the disease process are well visualized. Small abscesses, fistulae, and

event the urethrogram resembles the picture seen in any chronic inflammatory type of stricture.

The status of the bladder, ureters and kidneys, the second principle of diagnosis and treatment, may be determined in three ways. Plain roentgenograms will show stones and the outline of the kidneys. Intravenous pyelograms will indicate renal function and show the presence of hydronephrosis, renal and ureteral anomalies. Renal function may be determined by the blood chemistry, phthalein excretion, and the Mosenthal test. By means of these examinations the diagnosis of associated pathologic changes in the bladder and upper urinary tracts can be made early enough for appropriate treatment to be instituted.

However, it is not enough merely to determine the status of the bladder, ureters and kidneys at the onset of treatment. The importance of periodic examinations of the upper urinary tract, the third principle, at sufficiently frequent intervals to determine complications in their early stages, cannot be over-emphasized.

In actual treatment of the stricture itself, the part played by associated infection and other pathologic conditions should always be kept in



Fig. 4. Traumatic stricture. Male, aged 62, with stricture resulting from a "straddle" injury treated by external urethrotomy seven months before admission. Examination revealed a moderate enlargement of the lateral lobes of the prostate and a filiform stricture of the bulbomembranous urethra. Urethrogram taken after partial dilatation shows the clear demarcation of the strictured area with the remainder of the urethra appearing normal.

mind. This is the last of the four principles outlined above. Surgical treatment is rarely indicated except in those patients who present peri-urethral abscess, and those in whom diversion of the urinary stream by suprapubic cystotomy is indicated. If complete retention of urine is present and the urethral stricture is impassable, suprapubic drainage is, of course, necessary. Dilatation is always indicated following surgical operation for stricture, and too much importance cannot be given to the fact that it is necessary to keep a stricture dilated for the remainder of the patient's life. The intervals between dilatation are determined by the tendency of the stricture to contract. Some patients need dilatation every two weeks, others every month, and so forth.

In practically all patients a filiform can be passed through the strictured area into the bladder, especially if one remembers that obstruction to urination and passage of the filiform may be due in part to edema and cellulitis associated with

the areas of infection in the strictured urethra. Therefore, in many instances, giving the urethra a rest for a little while and applying local heat in the form of one or two hot sitz baths may bring about relief from complete obstruction to urination and permit one to pass a filiform into the bladder through the strictured area. In this way gradual dilatation of the strictured urethra can be begun, and during actual dilatation, gentleness is the watchword.

The method of continuous dilatation by the use of an indwelling urethral catheter was employed in the vast majority of our patients. This has been found to be the most satisfactory method for dilating small caliber strictures because there is no reaction, there is minimal trauma, and there is usually no pain to the patient. Only one patient in this series complained of the indwelling urethral catheter. At the same time the stricture may be dilated to a higher caliber more rapidly than by intermittent dilatation every four or five days. The good results obtained by this method are based upon a twofold action of the indwelling catheter: very gradual dilatation of the strictured area with resulting trauma to infected tissues reduced to a minimum, and diversion of the urinary stream from the infected, traumatized, urethral surface, thus eliminating small areas of cellulitis and urinary extravasations and permitting those already present to clear up most rapidly. The routine which was used in the vast majority of our patients follows:

On the first day we dilate with a filiform bougie and LeFort sound to a small caliber, No. 14 F. We then put in an inlying urethral catheter of small caliber, rubber if possible, woven silk if necessary. If the stricture is a very tight one, it may be best to leave the filiform itself inlying in the urethra and not attempt dilatation with sounds. The filiform will gradually dilate the urethra and the patient will be able to urinate around it. The next day it will be possible to insert a small caliber woven silk catheter fairly easily and continue the dilatation. During the succeeding four to six days catheters of increasing caliber can be inserted daily so that the urethra is dilated to No. 26 to 28 F. This is done easily with practically no pain or reaction. Therefore, the only pain or reaction which the patient suffers occurs at the original filiform dilatation when the urethra is dilated to No. 12 or 14 F.

This method is useful not only at the time of the original dilatation but also later at the time of regular periodic dilatations and may be used as an office procedure. The patient may come to the office where a small catheter is strapped into place to be worn for twenty-four hours. This method does away with the reactions which occur



in certain patients with each intermittent dilatation, and permits them to continue with their daily routine.

Whenever urethral instrumentation of any sort is carried out, careful aseptic technic should be used and the patients should have some urinary antiseptic by mouth for several days previous to and after the procedure. Also the urethra should be irrigated with an antiseptic solution such as potassium permanganate before instrumentation, after instrumentation and after removal of the urethral catheter.

#### SUMMARY

A study of 108 male patients with urethral stricture, examined and treated in the Department of Urology of the University Hospitals during the three and one-half year period from July 1, 1932, to January 1, 1936, served to emphasize the importance of considering the associated pathologic changes in the urethra, and in the bladder and upper urinary tracts during treatment. Three procedures have proved to be of considerable value in this series of patients and are worthy of reiteration. They are:

1. The employment of the urethrogram in diagnosis and follow-up.
2. The use of very gradual (so-called continuous) dilatation of the stricture by means of an inflating urethral catheter.
3. The necessity for careful and repeated examinations of the remainder of the urinary tract by means of renal function tests and by roentgenography.

### THE FINLEY HOSPITAL CLINICO-PATHOLOGIC CONFERENCE

#### CARCINOMA OF THE STOMACH

LAURENCE E. COOLEY, M.D., and  
B. A. MICHEL, M.D., Dubuque

Carcinoma of the stomach is generally considered to be the most common type of cancer in the male. While its symptoms may be variable, some type of abdominal distress is expected in every patient. The following case is of interest because of the lack of abdominal symptoms and the severity of the symptoms produced by an unusual type of metastasis.

#### CASE REPORT

*Chief complaint:* The patient, a toolmaker, fifty-six years of age, was admitted to Finley Hos-

pital, January 27, 1936, because of shortness of breath.

*Family history:* The father died at eighty years of age of pneumonia. The mother, two sisters and one brother were all living and well. There was no history of tuberculosis, cancer or heart disease in the immediate family.

*Past history:* The patient had always been a thin, nervous individual, weighing approximately 135 pounds. He had never been able to eat fried or greasy foods. There had been no previous illnesses.

*Present illness:* The patient began to complain of shortness of breath about three months before admission to the hospital. A cough had developed at the same time. There had been no fever at any time. The shortness of breath and cough had increased so much that the patient had been confined to bed for two months prior to admission. There had been a slight loss of appetite which had been relieved by the use of a tonic. An x-ray picture was taken of the chest. (Figure 1.) Dr.

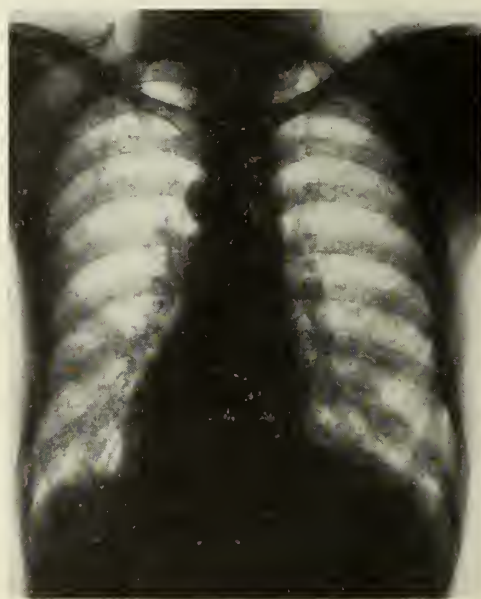


Fig. 1. X-ray of lungs taken November 16, 1935.

L. G. Ericksen made the following report: "Single film of the chest shows considerable infiltration of the lower half of both lungs and to a lesser extent the upper portions. This is linear in character and most suggestive of a non-tuberculous inflammatory process. A possibility of a tuberculosis of an atypical nature must be considered, also a possibility that this might be a lymphogenous type of metastasis. A sputum examination and follow-up x-ray examination in a period of two weeks or so would help to establish the diag-

nosis. Conclusion: probable non-tuberculous infection of the lungs."

The patient raised considerable sputum, occasionally purulent in character. Bacteriologic examination revealed a variety of organisms which were considered to be secondary invaders. No acid-fast bacilli, yeasts or fungi were found. The patient gradually became worse. A second x-ray examination was made ten weeks later. (Fig. 2.) Dr. Ericksen made the following report:

"Re-examination of the chest shows that there has been a marked increase in the pathology of lungs since the previous examination. This does not appear to be tuberculous in origin although this cannot be ruled out absolutely. The findings



Fig. 2. X-ray of lungs taken January 25, 1936.

are more suggestive of a lymphogenous type of metastatic malignancy, although it may be a non-tuberculous infectious process." The patient was brought to the hospital two days later.

*Physical examination:* The patient was an emaciated male about fifty years of age, who was extremely dyspneic most of the time. The pupils were equal and regular and reacted to light and accommodation. No jaundice could be seen in the sclera. The nose and throat were negative. Many of the teeth had been removed. There were no glands palpable in the neck and there was no enlargement of the thyroid gland. The chest wall was fixed and the breathing was abdominal. The chest was hyperresonant throughout. There were many fine moist râles heard at the end of inspiration. These râles were most numerous in the

lower part of both lungs, but could be heard up to the second interspace anteriorly on both sides. The heart was normal in size, its rate was 102, there were no irregularities present and there were no murmurs. There was a feeling of fullness in the epigastrium, but the upper abdominal muscles were tense so that it was impossible to say whether or not there was a mass present. The rectal examination was negative. The reflexes were normal. The blood pressure was 117/78. The patient's weight on admission was 112 pounds. The white blood count was 14,000, the red blood count was 5,400,000, the hemoglobin was 100 per cent, the color index was .92 and the differential count was essentially normal. The red cells were even in size, shape, and staining. The blood count was repeated two days later, and showed a red blood count of 5,260,000, hemoglobin of 95 per cent, and a color index of .9. The urine was negative except for a moderate amount of acetone. Repeated examinations of the sputum gave no additional information. A gastro-intestinal x-ray picture was made. Dr. Ericksen reported the following: "Fluoroscopic and film examination of the stomach and duodenum was done. It was very difficult to examine the patient because of his weakened condition. There is, however, a small area in the mid-portion of the stomach which fails to show any peristalsis and is very suggestive of infiltration. Would like to re-examine patient to establish this more definitely." In the meantime the patient's condition had become so much worse that a second examination of the stomach was not done.

*Course in hospital:* The patient had a number of attacks of shortness of breath which had to be relieved by an opiate. The appetite was good during the first few days in the hospital. The patient became rapidly weaker, lost consciousness one week after admission, and died two days later.

*Necropsy report (abstract):* At necropsy an infiltrating neoplasm involved the middle third of the stomach (Fig. 3). A few minute nodules were found in the omentum and metastases were also seen in the mesenteric lymph nodes. The lungs felt nodular throughout, but on section showed relatively slight changes (Fig. 4). Occasionally a minute miliary metastasis could be seen in the parenchyma and the bronchial walls were thickened by the neoplasm. The hilic and superior mediastinal lymph nodes were enlarged, due to metastases. The microscopic sections of the stomach showed a gradual transition from the normal mucosa to the neoplasm. Large and small masses of epithelial cells were actively invading the muscular coats and the lymph vessels (Fig. 5). The



sections of each lung showed peribronchial, interlobular and subpleural extension of the neoplastic cells (Fig. 6). In many areas they invaded the alveoli and in some instances completely filled them (Fig. 7).

*Anatomic diagnosis:* Primary: Carcinoma of

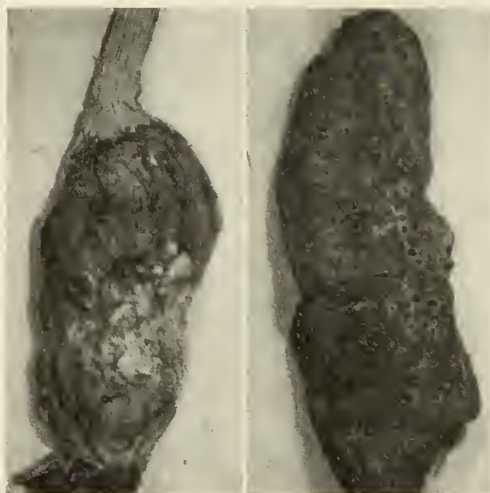


Fig. 3. Photograph of the stomach showing carcinoma in the mid-portion.

Fig. 4. Cross section of the right lung. Note mil-  
itary metastases and neo-  
plastic thickening of the  
bronchial walls.

the stomach; metastases to the omentum, mesenteric, hilic and mediastinal lymph nodes, and to each lung; acute cardiac dilatation with acute congestion of all the viscera. Subsidiary: Arterio-sclerosis.

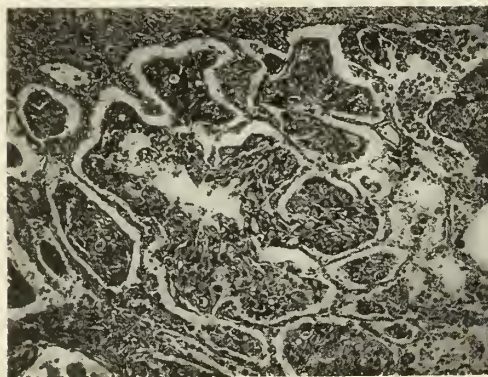


Fig. 5. A section of the gastric mucosa. Note the neoplastic masses in the lymphatics.

#### DISCUSSION

The symptomatology in this case made us believe that the condition was primarily in the lung. Among the conditions considered were: first, an unusual type of tuberculosis; second, some yeast

or fungus infection; third, pneumoconiosis; and fourth, some unusual type of malignancy either primary or secondary in the lung. The fact that there was no anemia present made the diagnosis of malignancy seem extremely doubtful.

On metastases of the lung Kaufman<sup>1</sup> states: "Metastases may take the form of cords or nets or more rarely diffuse infiltrations. The first fre-

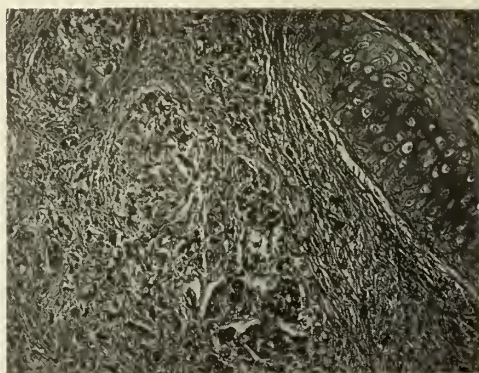


Fig. 6. A section of a bronchus showing the peribronchial extension of the neoplasm.

quently come from the pleura (carcinoma of the breast) or from bronchial lymph nodes (carcinoma of the stomach and esophagus, etc., uterus, ovaries and even the prostate gland), retrograde against the lymph current which normally is directed toward the lymph nodes. In extension by

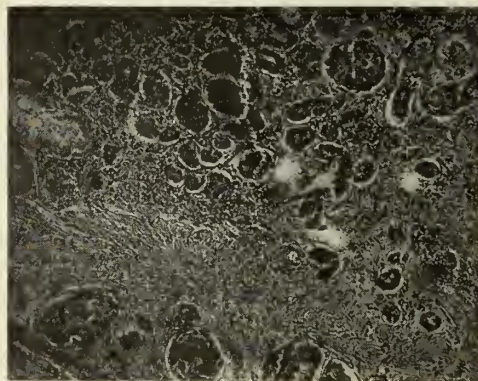


Fig. 7. A section of lung showing the alveoli filled with neoplastic masses.

continuity the cells progress in the pulmonary lymph channels sometimes in broad strands, more often in extremely delicate networks with nodules at the junctions; the pleural lymphatics may look like rosaries. Both lungs may be involved with-

out the presence of larger nodules; pleural adhesions are absent, but nodules may be present on the serosa. The cells frequently line the alveoli or fill them completely, forming foci resembling miliary bronchopneumonias. Larger alveolar infiltrations resemble caseous pneumonia. The smaller bronchi and vessels are often narrowed by pressure or infiltrations in the submucosa and mucosa (vessel walls). More sharply defined nodules around the bronchi (peribronchial) resemble similarly situated tuberculous processes, and look like miliary tubercles. The term for this condition is lymph vessel carcinoma; carcinomatous lymphangitis is less satisfactory. When wide spread, it causes clinical symptoms, such as cardiac insufficiency, emphysema and dyspnea."

Bard<sup>2</sup> and Meyenburg<sup>3</sup> have also written about this type of metastatic tumor and Weil<sup>4</sup> has described it from the x-ray standpoint. Kaufman<sup>1</sup> describes the following case: "In a man fifty years old with gastric carcinoma, the author saw rupture into the thoracic duct, the cloudy contents of which contained tumor masses. The lungs were filled with innumerable small nodules giving the impression of hematogenous origin, but microscopically the nodules were in dilated lymph vessels and it must be assumed that this occurred by retrograde transport from the infiltrated nodes of the hilum."

There was no evidence of involvement of the thoracic duct in the case reported here. It would seem that the tumor cells must have spread from the gastric lymph nodes to the posterior mediastinal lymph nodes and then to the peribronchial lymph nodes. Unfortunately there were no enlarged posterior mediastinal lymph nodes seen at necropsy. From the peribronchial lymph nodes there was a retrograde spread of the tumor into both lungs in the opposite direction to the normal lymph current.

#### CONCLUSION

A case of carcinoma of the stomach is reported showing an unusual type of metastasis. The case is also of interest because the pulmonary symptoms completely overshadowed the clinical picture.

We wish to express appreciation to Dr. F. P. McNamara for the necropsy abstract and to Dr. L. G. Ericksen for the x-ray reports.

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3. Meyenburg: *Cf. Schw.*, xlv:1919. (Cited by Kaufman.)
4. Weil: *F. G. R.* xxv:1920. (Cited by Kaufman.)

#### RADIO SCHEDULE—SPEAKERS BUREAU IOWA STATE MEDICAL SOCIETY

WOI—Wednesdays at 4:30 p. m.

WSUI—Mondays at 8:00 p. m.

- April 8—Arteriosclerosis  
Raymond Rice, M.D.
- April 15—Venereal Diseases  
F. J. Swift, M.D.
- April 22—Rheumatic Fever  
P. A. White, M.D.
- April 29—Hospitals  
H. L. Brereton, M.D.
- May 6—Mothers' Day  
Mrs. A. Laura Campbell

#### SPECIAL MEETINGS DURING THE NATIONAL CONVENTION

The alumni of the College of Medicine of the State University of Iowa, will have a dinner meeting at seven o'clock, Wednesday evening, May 13, during the annual meeting of the American Medical Association, which will be held in Kansas City, Missouri, May 11-15. Dr. Charles F. Lowry of the class of 1929 is in charge of the arrangements for the dinner. His address is 1010 Medical Arts Building, Kansas City, Missouri, and he is anxious to hear from members of the alumni who plan to attend the session, since the location for the dinner will be determined by the number who expect to be present. The price of the dinner will be approximately two dollars.

The American Association for the Study and Control of Rheumatic Diseases is holding its fifth conference on rheumatic diseases in Kansas City, Missouri, at the Phillips Hotel, third floor, Monday, May 11. The educational program deals with the differential diagnosis of diseases of the joints.

#### AMERICAN ASSOCIATION ON MENTAL DEFICIENCY

The American Association on Mental Deficiency composed of some five hundred educators, psychologists, sociologists and psychiatrists will hold its sixtieth annual meeting at the Hotel Jefferson, St. Louis, Missouri, May 1-4, 1936. Some of the speakers are: Popenoe on Sterilization; Goddard on Social Security; Hincks on A National Program; Kirkbride on Public Welfare; Vanuxem on Education; Berry on Teaching Technics; and Humphreys on Research Problems. Everyone interested in the mentally defective or retarded child is cordially invited to attend these sessions. A complete program may be obtained from the secretary, Dr. Groves B. Smith, Godfrey, Illinois.



# STATE DEPARTMENT OF HEALTH

*Mae Habernicht*

## TENTH ANNUAL MEETING OF THE IOWA PUBLIC HEALTH ASSOCIATION

Tuesday, April 28, 1936

Guest speakers for the coming meeting of the Iowa Public Health Association, in addition to Archibald L. Hoyne, M.D., and Sidney O. Levinson, M.D., both of Chicago (see March number of the JOURNAL), are as follows:

R. A. Vonderlehr, M.D., Assistant Surgeon General, United States Public Health Service, Washington, D. C., on the subject, "Syphilis as a Public Health Problem;" A. J. Chesley, M.D., State Health Officer of the Minnesota Department of Health, with the subject, "Public Health Receives Federal Aid;" Mae Habernicht, M.D., Director of the State Bureau of Child Welfare, who will deal with the extension of child welfare services under the Social Security Act, and Arthur Steindler, M.D., Professor of Orthopedics at the University of Iowa, who will discuss the work for crippled children under that Federal Act.

In view of the national prominence of the guest speakers, of the importance of the subjects to be discussed and of the fact that this meeting will immediately precede that of the Eighty-fifth Meeting of the Iowa State Medical Society, the attendance this year should be unusually large.

The tentative program is as follows:

### Hotel Savery—Des Moines, Iowa

- 9:30 Registration
- 10:00 Welcome to Members, Attendants and Guests  
—G. W. Rimel, M.D., President, Iowa Public Health Association, Bedford, Iowa
- 10:15 Reading of Minutes—Announcements
- 10:30—
- 12:00 Business Meeting—Informal Conferences

### Noon Luncheon Session

- 12:15—
- 2:15 Symposium on the Social Security Act:
  1. Public Health Receives Federal Aid—A. J. Chesley, M.D., State Health Officer, Minnesota Department of Health, Saint Paul, Minnesota
  2. Iowa Accepts the Nation's Proffer—Walter L. Bierring, M.D., Commissioner, Iowa

State Department of Health, Des Moines, Iowa

3. Maternal and Child Health Benefits—J. H. Kinnaman, M.D., Director, Child Health and Health Education, Iowa State Department of Health, Des Moines, Iowa
4. Crippledom Profits—Arthur Steindler, M.D., Professor of Orthopedics, University of Iowa, Iowa City, Iowa
5. Child Welfare Services Are Extended—Mae Habernicht, M.D., Director, State Bureau of Child Welfare, Des Moines, Iowa

### Afternoon Session

- 2:30 Syphilis as a Public Health Problem—R. A. Vonderlehr, M.D., Assistant Surgeon General, United States Public Health Service, Washington, D. C.
- 3:15 Progress in Communicable Disease Control—Carl F. Jordan, M.D., Director, Division of Communicable Diseases and Epidemiologist, Iowa State Department of Health, Des Moines, Iowa
- 3:30 When Diphtheria Threatens to Take a Life—Archibald L. Hoyne, M.D., Medical Superintendent, Municipal Contagious Disease Hospital and Attending Physician and Chief, Department of Contagious Diseases, Cook County Hospital, Chicago, Illinois
- 4:00 The Value of Human Convalescent Serum in Measles and Poliomyelitis—Sidney O. Levinson, M.D., Director, Samuel Deutsch Serum Center, Michael Reese Hospital, Chicago, Illinois

## SMALLPOX MORBIDITY AND VACCINATION STATUS

### *Reported Cases of Smallpox in Iowa*

Since 1930, there has been a remarkable decrease in the reported incidence of smallpox. This is apparent in the accompanying bar diagram (Fig. 1), which indicates the total annual number of smallpox cases reported for the ten-year period from 1926 to 1935. It is not likely that this diagram represents a dependable index of the actual prevalence of smallpox in recent years. The figures apparently reflect more accurately the period of economic stress of the past

five years. Cases of smallpox are not likely to be reported, unless seen by the attending physician. The attending physician, however, has not been called in many instances in which communicable disease has been present in homes. It is interesting to note that the reporting of smallpox has shown a definite upward trend during the past number of months as compared with the same period a year ago. During January, February and March of this year, 194 cases of smallpox were reported to the State Department of Health, more than seven times the 27 cases reported for the first three months of 1935. It is desirable that the reporting of smallpox cases improve steadily, because of the direct bearing which reporting of cases has on the successful carrying out of control and preventive measures.

BAR DIAGRAM SHOWING REPORTED CASES OF SMALLPOX IN IOWA FOR THE TEN-YEAR PERIOD, 1926-1935

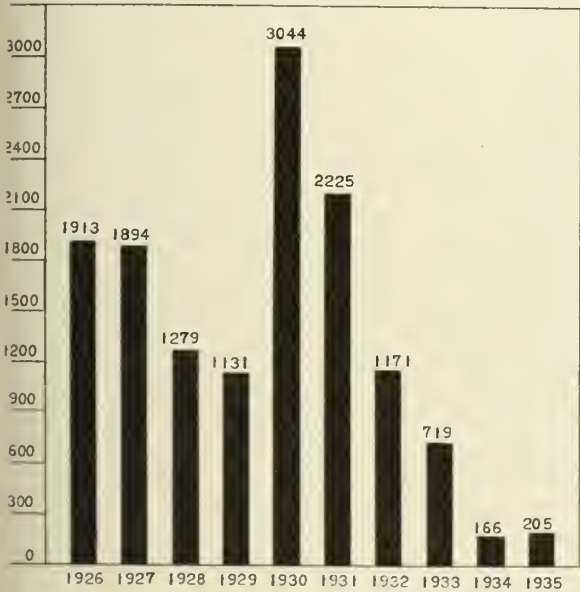


Fig. 1

Smallpox and Vaccination Status

There is overwhelming evidence that smallpox, with rare exceptions, attacks only those persons who have not within recent years, been successfully vaccinated or revaccinated. From a health educational standpoint, it is important that people know the facts about smallpox. Such facts are made available by attending physicians who, when they see cases of this readily preventable disease, make frank inquiry relative to the vaccination status. Information of this kind, included on the regular report cards, is of great value. The accompanying bar diagram (Fig. 2) is based entirely upon information taken from report cards, covering the three-year period from 1933 to 1935. It will be noted that only 316 of the 1090 reported cases contained the desired information. Of the 316 reported cases, 97 per cent gave no history or showed no evidence of successful vaccination against smallpox. Physicians and health officers

render a distinct service to education and preventive medicine when they furnish complete information for each reported case of smallpox.

VACCINATION STATUS OF 316 AMONG 1,090 CASES OF SMALLPOX REPORTED IN IOWA, 1933-1935

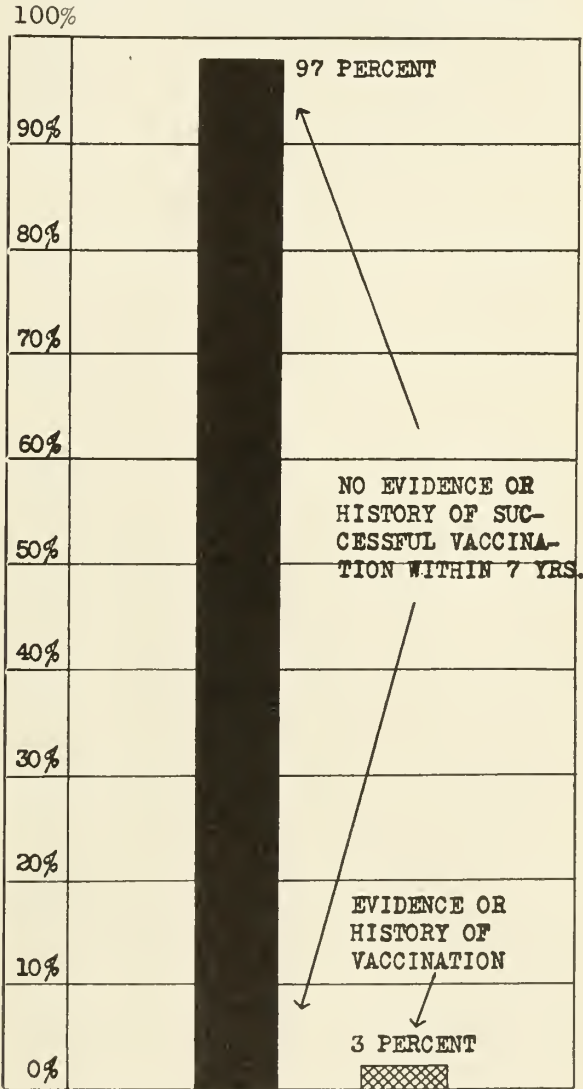


Fig. 2

PREVALENCE OF DISEASE

	Feb. '36	Jan. '36	Feb. '35	Most Cases Reported From
Diphtheria	40	55	33	Polk
Scarlet Fever	627	817	372	Pottawattamie, Scott Black Hawk
Typhoid Fever	15	9	6	Lee, Pottawattamie
Smallpox	59	57	12	Woodbury, Clarke
Measles	38	31	5,640	Cass
Whooping Cough	38	101	47	Lee
Cerebrospinal Meningitis	20	19	10	Polk
Chickenpox	203	392	196	Polk, Dubuque
Mumps	905	1,008	776	Boone, Lee
Poliomyelitis	0	2	3	(For State)
Tuberculosis	15	169	32	(For State)
Undulant Fever	6	7	5	(For State)
Syphilis	128	121	122	(For State)
Gonorrhea	99	174	154	(For State)



# The JOURNAL of the Iowa State Medical Society

ISSUED MONTHLY

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## COMPULSORY HEALTH INSURANCE

The government has accepted a program of spending unparalleled in the history of the nation. The federal policy of paternalism has grown with each succeeding year until its ramifications are not realized even by those who create and administer funds. Machinery for spending is set in motion under conditions of apparent stress and new bureaus or sub-bureaus established to assure the continued operation of the machine; costly new jobs are created and established ones divided until the administrative units of the government acknowledge bewilderment in this maze of unchecked and apparently uncharted expansion.

A necessary corollary of this program of spending is one of ever increasing taxation of industry and capital. Money must be obtained where money exists and new sources of income must be tapped if even a semblance of federal solvency is to be maintained. The point of tax saturation has not been defined, but such a point must exist. When personal effort is shorn of reward, incentive is crushed and endeavor ceases. Mr. Ford correctly observes, "We can't devote our lives merely to producing revenue for a government." Obviously, a democracy cannot support such a scheme. In spite of this observation, the fact remains that taxes have mounted and must increase still farther if the federal spending program is not altered. The president of one large business organization reports that whereas in 1925 the taxes paid equaled 17.3 per cent of the pay roll, in 1934 taxes amounted to 76.5 per cent of the pay roll. An Iowa physician with a net income of \$3,000 in 1925 paid a single income tax (federal) of \$48.50. In 1935 with the same net income he would pay a federal and state income tax of \$108 and \$60 respectively, a total income tax of \$168. A net

income of \$10,000 in 1925 demanded \$280 as tax, while in 1935 the combined tax amounts to \$1,104, and this is not the end of the story.

At the last session of Congress, new tax laws were enacted in an effort to provide additional sums sufficient for the operation of the ever-growing governmental machinery. Having passed the Social Security Act with its multiple benefices, the Congress attempted to meet this new demand for huge sums by enacting taxes on industry which beginning in 1937 at one per cent will amount to three per cent in 1939 and thereafter. Another tax of one per cent on salaries up to \$3,000 per annum starts in 1937 and increases one-half of one per cent every three years until 1949 when it reaches its peak of three per cent. In addition to this sum, the firm paying the salary must deduct a like amount from each employee's check and remit to the government. This means that industry must bear an additional tax for this Social Security Plan (sponsoring social welfare, unemployment relief, old age pension, etc.) beginning at three per cent and mounting to a total of nine per cent at its peak. In other words, for every employee drawing \$100 per month, \$108 per year will be paid in taxes to support this bill.

On the assumption, apparently, that the American public wish a more completely socialized central government, our representatives in Washington are demanding action upon a plan of health insurance, which, to be effective even in a modest way, would require the creation of an additional government machine into whose maw millions of dollars, the product of still further taxation, must be poured annually. And to what purpose? Conceived and sponsored by social workers, actuated, no doubt, by the best of motives, the scheme of health insurance would bring needed compensation and free medical service to that large section of our population now represented as too poor to obtain adequate medical service. Even with its additional tax burden for operation, we of the medical profession would heartily endorse the program if optimistic assurance could be entertained of its effectiveness. Unfortunately, the experiences of other nations with similar plans emphatically dispel such optimism. England, before compulsory health insurance, found among her workmen an average of nine days per year lost because of illness. With compulsory health insurance, well established under government management, a critical survey found the time lost annually for workmen was twelve and one-half days, an increase of more than 38 per cent with corresponding loss to industrial productivity. In Germany, where sickness insurance has been on trial for

more than fifty years, the loss of time noted among workmen has trebled. What can reasonably be expected to happen in this country under a similar plan? The problem is of childish simplicity. Our present favorable experience of about six and one-half days lost per year per workman would surely rise to ten or twenty days per year with comparable resulting losses to industry and national wealth. These figures must either be accepted as a frank denial of the statement that a considerable group now exists which does not receive adequate medical care, or would indicate that a bureaucratic medical service, under a scheme of health insurance federally administered, fails to render a medical service as efficient as that now obtained by these allegedly underserved classes.

Even a philanthropically inclined public in full possession of the facts concerning the workings of a compulsory health insurance plan, will not, in our opinion, tolerate a still further increase in taxation to foster the experiment in this country. The physician has not only the interest of a tax payer, which surely is vital enough, but also the added interest of a recognized custodian of public health in considering this measure. It therefore behooves him to become acquainted with the program of compulsory health insurance and its costs, and when in possession of these facts, to acquaint and advise his patients and friends concerning these matters. Such a program will go far toward curbing an unwarranted enthusiasm of this tremendously expensive and patently ineffective gesture of paternalism on the part of our federal government.

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#### HEALTH NEWS BY RADIO

From its lowly beginning as a scientific curiosity a score of years ago, the radio has today developed to the point where it has become not only "big business," but a necessity of modern life. While perfected primarily for the transmission of messages by telegraphic code, its major function today is that of furnishing home entertainment. Millions of dollars are invested in sending and receiving equipment. The industry contacts and influences millions of lives, and in turn is shaped and molded in its development by this critical radio public. Entering practically every American home (95 per cent), the radio serves not only as a medium for entertainment but also as a source of information and education.

No controversy can exist relative to the merits of the radio in either of these fields. Astute business concerns spent nearly \$75,000,000 last year

for the privilege of advertising their products "on the air" in connection with entertainment programs. One concern is reported to be spending \$150,000 in salaries to two actors who captivate a tremendous radio audience in portraying the tribulations of Amos and Andy, and at the same time attract attention to the concern's brand of tooth paste. A gasoline manufacturer is said to pay a wise-cracking, slap-stick comedian \$6,000 for each performance where this particular gasoline is advertised. In addition to these salaries the manufacturers must pay in the neighborhood of \$10,000 for one hour's time on the network. The advertising budgets of careful and progressive business houses are not planned by guesswork. They know that the large expenditures are fully justified by the tremendous audience reached and by the sales recorded.

If radio time is so valuable to the butcher, the baker, and the candlestick maker, it should, by like token, be tremendously valuable in furthering the education of the public in matters of personal and community health. Obviously if an accurate and timely message can be delivered to a sufficiently large audience, much good will result. With scores of efficient broadcasting stations and the modern highly selective radio receiving sets, a radio audience can only be secured by genuine merit. No audience can be forced to listen to a program. If the program is not attractive or the message compelling because of its timeliness, the dials will spin, and the program will be just so much static to the radio public. The public knows what it wants from the radio and if it is furnished with this type of program will undoubtedly "listen in."

That the public wants—in fact, demands—the educational program is evidenced by the attitude of the broadcasting companies who reflect this public opinion in inviting and encouraging this form of program. Most broadcasting companies invite a health message if properly sponsored, and we may be assured that these messages are well received or this attitude would from necessity change. Studies have been made by certain interested organizations which would reflect the attitude of the public toward the well sponsored health message. One study indicated 33 per cent of homes in the radio area "listened in" on the health program, while another survey indicated 29 per cent. No local studies have been made, but accepting the criterion of the broadcasting companies who estimate that only one listener in about 1,500 or 2,000 will write for printed copies of a radio talk, it has been estimated that the radio

(Continued on page 221)



# Public Education--the Weapon Against Tuberculosis

## FOREWORD

*Those who see the steady stream of patients entering the tuberculosis sanatoria deplore the all too evident delay in making the diagnosis. About five out of each six patients in our sanatoria throughout the country are classified on admission as moderately advanced and far advanced cases of tuberculosis. One reason for the delay in diagnosis is undoubtedly to be found in the lethargy of the people, coupled with the common human failing of not wishing to face unpleasant facts. Another reason is that even though the warning signals of tuberculosis have been given widespread publicity in the past, new generations are constantly appearing on the scene and older ones forget so easily. What is the Iowa Tuberculosis Association and other tuberculosis associations doing to meet this situation?*

\* \* \*

The founders of the tuberculosis movement realized that only through broad education of the public could any progress against tuberculosis be made. The new discoveries of Koch, Nageli, Pirquet and others, the promising results of Trudeau's method of treatment, and the pioneering activities of Biggs, inspired hope that the disease which had resisted medical science so long could be curbed. Yet this could be accomplished only with the understanding support of the people. They must know that tuberculosis is curable and preventable, that it is not a stigma, and that facilities for diagnosis and treatment must be liberally provided. Wisely the founders chose as the motive power of the new movement, public education. In the early days the exhibit and the lecture were the chief means of arousing public sentiment. Later the press, printed matter and motion pictures were added. Today practically every avenue of reaching the attention of the masses is used.

Each year, a certain theme is selected, and all associations are urged to emphasize that theme during the year. Printed matter and publicity aids are produced in advance. To make a definite impact the "release date" is set for April 1. Early diagnosis was the subject of the first of these campaigns, hence it was called "Early Diagnosis Campaign," a label which has remained even though subsequent themes were on other aspects of tuberculosis control. This year the slogan is "Fight Tuberculosis with Modern Weapons." The two objectives are first, to remind people of the early symptoms of tuberculosis and the importance of consulting the doctor on their appearance, and second, to arouse interest in the routine search for

early tuberculosis before there are symptoms and physical signs.

To achieve the former, booklets, articles and outlines for talks have been prepared calling attention to the four most common symptoms of early tuberculosis (as determined by surveys of large numbers of sanatoria patients), namely, fatigue, loss of weight, cough that hangs on and indigestion. Blood spitting, pleuritic pain and other symptoms are also mentioned. It is carefully explained that none of these symptoms is pathognomonic, but that any of them should be considered as a danger signal to be investigated by the physician. An effort is made to create appreciation for the x-ray. In all the educational material, care is exercised not to cause undue alarm.

The second objective is to encourage routine search for symptomless tuberculosis among groups of young people such as high school and college students. What is the justification for advocating this new departure? Statistics from tuberculosis sanatoria indicate that the ratio of "early cases" admitted has not increased appreciably during the past ten years. This condition exists in spite of years of earnest effort to urge people to obtain medical advice on the appearance of the early symptoms enumerated above. Many conscientious doctors constantly on the alert for tuberculosis have despaired of increasing their "batting average" of discovering the disease in its incipency. The reason for that failure cannot be blamed entirely on the apathy of patients nor on the lack of vigilance of doctors. It is to be accounted for in part by the fact that the transition from early or silent tuberculosis to the moderately advanced

stage is usually a relatively swift one and only by the barest chance is the minimal case detected. So long as we are obliged to wait until symptoms betraying pulmonary damage drive the patient to our offices, we shall probably continue to despair.

Wrestling with this deplorable state of affairs, efforts have been made to devise some way of detecting tuberculosis in its silent stage among apparently healthy people. Chadwick, Rathbun, Myers and others pioneered in introducing the scheme of examining routinely, with tuberculin and the x-ray, students in colleges and high schools. This procedure, modified in various ways, has "caught on" throughout the country. The routine examination of all students brings to light early cases that might otherwise be undetected and progress to disabling disease. Lees, who examined last year all students of the University of Pennsylvania by the tuberculin-x-ray method, found seventeen cases of adult type pulmonary tuberculosis, all were symptomless and only one was dismissed from the school. Contrast this with the usual "passive" case finding, i. e., waiting for persons to apply to the doctor for the relief of symptoms. Lees reports that during the course of the same year, fifteen cases of tuberculosis had been discovered among students who came to the doctor because of one or another symptom. Twelve of the fifteen were advanced cases and were obliged to leave school.

In high schools the story is substantially the same except that fewer cases of adult type tuberculosis are found. However, follow-up work of adolescent children with significant childhood type lesions leads the investigators into many homes where there is an open case. This is important, for the real threat to the youngster is probably not the calcified remains of a primary complex but daily contact with a source of infection. No wonder proponents of the routine tuberculin-x-ray plan emphasize the value of locating such sources of infection. In grade schools the routine method has not been found so productive, but where funds and facilities are available, it is certainly an excellent addition to our school health program.

It is with the hope that the public will accept these newer ideas for the protection of young people that demonstrations are carried on in several important colleges and schools. It is hoped that ultimately parents will depend upon the family doctor to examine their children as a matter of course with tuberculin and the x-ray when indicated. In this educational campaign, tuberculosis associations look to the physician for guidance and counsel.

## HEALTH NEWS BY RADIO

(Continued from page 219)

broadcasts sponsored by the Speakers Bureau of the Iowa State Medical Society are heard by an audience varying from a low of nine or ten thousand to a high of 180,000 to 200,000. This study further indicates that the larger audiences are had during the winter months, and when specific diseases such as arthritis, colitis, cancer, etc., are presented. It is believed that discussions of a more general character are digested at the time of the presentation, while more limited subjects are frequently the topics for more intensive study.

We are convinced that a definite opportunity exists in furthering the principles and practice of good health and preventive medicine through this channel, and feel that no opportunity should be neglected in giving wide publicity to the activity of those official bodies now actively engaged in this public service. If we will utilize our every contact in acquainting the public of these broadcasts a greater good will be accomplished as this work progresses. In furtherance of this work we wish again to bring to the attention of our members, the schedule of radio broadcasts with official sponsorship which have been reported to us.

### American Medical Association

Broadcast over the Red Network each Tuesday at 3:00 P. M., through stations WEAJ, WEEL, WTIC, WJAR, WTAG, WCSH, KYW, WFBR, WRC, WGY, WBEN, WCAE, WTAM, WWJ, WMAQ, KSD, WHO, WOW, WDAF.

### Iowa State Medical Society

Broadcast over WOI every Wednesday at 4:30 P. M., and over WSUI every Monday at 8:00 P. M.

### Des Moines Academy of Medicine and Polk County Medical Society

Broadcast over KSO every Wednesday at 5:00 P. M.

### Winneshiek County Medical Society

Broadcast over KGCA every Thursday at 12:45 P. M.

Mention should be made of the pioneer work in this field done by the physicians in Wapello County. Weekly health talks were presented over the Ottumwa radio station until two years ago when it was consolidated with the Cedar Rapids station. The Woodbury County Medical Society also sponsors occasional health programs over the Sioux City radio station.



# WOMAN'S AUXILIARY NEWS

*Edited by the Press and Publicity Committee*

MRS. DEAN W. HARMAN, *Chairman*, Glenwood, Iowa

## NEWS FROM THE NATIONAL

Mrs. Samuel Clark Red, of Houston, Texas, who won all who were so fortunate as to hear her last year at the state meeting at Davenport, and who has the honor of being the first president of the Woman's Auxiliary to the American Medical Association, brings greetings to the State Auxiliaries:

"At the St. Louis meeting in November, Mrs. J. Bomar White, of Georgia, presided most graciously and presented her programs in a splendid manner.

"The most outstanding features of the meeting were the reports of the Chairman of the Committee on Research, Mrs. S. A. Collum of Texarkana, Texas, and an address by Mrs. David S. Long of Harrisonville, Missouri. Mrs. Collum distributed a little pamphlet in which may be found lists of papers to be loaned for programs on the following subjects: auxiliary information, addresses and reports of presidents, health history, public relations, biography, research, poetry, reference material, memorials, and projects. This material is invaluable and ten years ago could not be obtained without unending research. The writer knows for she was asked to give many talks and papers on these subjects. If the whole Auxiliary has done nothing more than the gathering and circularizing of this material, it has fully justified its existence.

"It is said that Shakespeare never repeats, but not being in any way like that great personage, I feel many good things bear repetition. There is one thing I want you to repeat often at your meetings and when alone, thinking of your Auxiliary work. It is the Club Woman's Creed. Keep in mind, especially those lines about fault-finding and self-seeking and little things, and about remembering always to be kind."

## HEALTH ESSAY CONTEST

Miss Lucille Gripp of Thayer was selected as the winner of the third annual health essay contest sponsored by the Woman's Auxiliary to the Iowa State Medical Society and the Speakers Bureau Committee. Miss Gripp is a junior in the Thayer Consolidated School. Winner of second place was Harry Jensen of Council Bluffs, and third prize was awarded Carl Strand of Gowrie. Prizes were given on the basis of originality, composition, evidence of study, and knowledge of the subject. Judges were: R. C. Williams, of

the State Department of Public Instruction; Dr. J. H. Kinnaman, of the State Department of Health; Dr. D. J. Glomset, Chairman of the Speakers Bureau Committee, all of Des Moines; Mrs. M. C. Hennessy of Council Bluffs, President of the Woman's Auxiliary; and Mrs. W. A. Seidler of Jamaica, a past president of the organization.

The essays this year were on the subject "Immunitization Against Disease—A Gift of Science to Mankind," and students from all the high schools in every section of the state participated in the contest. Only the three best essays from any one school could be entered in the contest. Miss Gripp, the winner, received twenty dollars, and was given a trip to Ames, to read her essay over Radio Station WOI, on the program regularly presented by the Speakers Bureau of the Iowa State Medical Society.

Those receiving honorable mention were:

Elaine Maxine Brinton, Stuart; Betty Coulter, Guthrie Center; Eleanor Peters, Council Bluffs; Paul Schaff, Camanche; Dorris Budde, Maquoketa; Patricia Warner, Sioux City; Paul Miner, Cedar Falls; Gene A. Garrett, Ogden; Barbara White, Council Bluffs; Eleanor Vogel, Burt; Margaret Sandy, Valley Junction; Betty Knotts, Talmadge; Ruth Fridell, Gowrie; David Rubenstein, Council Bluffs; Fay Hawley, Hayfield; John R. Fitzgerald, West Liberty; Howard Palmer, Kalona; Keith Ockeltree, Perry; Norma Jean Zach, Hastings, and Madonna Barry, Melrose.

## Wapello County

The Woman's Auxiliary to the Wapello County Medical Society enjoyed a talk on tuberculosis and the works and aims of the Sunnyslope Sanitarium, of Ottumwa, at the September meeting. It was decided to donate some equipment for the new children's wing and also to furnish Hygeia to the local Y. M. C. A. and to three schools not already supplied.

A bridge party including the doctors as guests followed the December business meeting. The Auxiliary voted to sponsor an outstanding medical speaker for one of the next year's Woman's Club evening programs.

Election of officers was held at the March meeting following a very interesting program, including a review of the life of Sir William Osler and a discussion of Socialized Medicine.

## SOCIETY PROCEEDINGS

### Des Moines County

The regular monthly meeting of the Des Moines County Medical Society was held Tuesday, March 10, at the Union Hotel in Burlington. After the six o'clock dinner, motion pictures were shown of Collapse Therapy in the Treatment of Pulmonary Tuberculosis, and Ergotocin in Obstetrics.

### Dubuque County

The March meeting of the Dubuque County Medical Society was held Tuesday, March 10, in the Julien Dubuque Hotel. Dinner was served at six-thirty in the Dutch Room, and the business session convened at eight-thirty. Drs. W. A. Henneger and C. C. Lytle took charge of the scientific meeting. J. C. Kessler, M.D., professor of dermatology, University of Iowa, presented cases of Infantile Eczema, Impetigo, and Psoriasis, and discussed them in detail.

A. C. Pfohl, M.D., Secretary

### Floyd County

Members of the Floyd County Medical Society were entertained at the home of Dr. Ray Fox in Charles City, Tuesday, March 24, for their regular monthly meeting. The scientific program consisted of a paper by F. H. Fillenwarth, M.D., of Charles City, on Meningitis Following Mastoid Trouble; and one by T. G. Walker, M.D., of Riceville, on Congenital Heart Disease.

### Hardin County

Julian M. Bruner, M.D., of Des Moines was guest speaker for the Hardin County Medical Society, at its meeting held in Iowa Falls, Thursday, March 12. Dr. Bruner presented an illustrated lecture on Urography.

### Henry County

A joint meeting of the Henry County Dental Society and the Henry County Medical Society was held in Mt. Pleasant, Friday, March 27, with Dr. Katherine Daum, director of the nutrition department, University of Iowa, as the speaker of the evening.

### Jefferson County

The Jefferson County Medical Society met in Fairfield, Friday, March 13, and Nathaniel G. Alcock, M.D., of Iowa City, spoke on the subject, Malignancies of the Urinary Tract, with Special Reference to Treatment.

### Linn County

A regular meeting of the Linn County Medical Society will be held in conjunction with the Johnson

County Medical Society at Iowa City, Friday, April 10. Dinner will be served at the hospital cafeteria, after which the session will adjourn to the medical amphitheater where Andrew H. Woods, M.D., head of the department in psychiatry, with the assistance of his staff, will present a clinic in psychiatry. Discussion will be conducted by R. A. Stewart, M.D., of the Independence State Hospital; Russell C. Doolittle, M.D., of The Retreat, Des Moines; and Frank S. Skinner, M.D., of Marion.

T. F. Hersch, M.D., Secretary

### Marshall County

Edward H. Skinner, M.D., of Kansas City, Missouri, was guest speaker at the monthly meeting of the Marshall County Medical Society held in Marshalltown, Tuesday, March 3. Dr. Skinner spoke on Curable and Preventable Fields of Malignancy. Discussion was led by Arthur W. Erskine, M.D., of Cedar Rapids; Thomas A. Burcham, M.D., of Des Moines; and L. F. Talley, M.D., of Marshalltown.

### O'Brien County Annual Meeting

The annual meeting of the O'Brien County Medical Society was held in Primghar, Thursday, March 26, with the following results: Dr. N. E. Weems of Paulina, president; Dr. G. C. Oldag of Paulina, vice president; Dr. H. J. Brackney of Sheldon, secretary and treasurer; and Dr. W. R. Brock of Sheldon, delegate.

### Polk County Meetings

A special scientific meeting of the Des Moines Academy of Medicine and Polk County Medical Society was held at the Hotel Fort Des Moines, Tuesday evening, March 10. Carl H. Gellenthien, M.D., of Valmora, New Mexico, was guest speaker, and read a paper on Practical Methods of Sanatorium Treatment of Pulmonary Tuberculosis. The lecture was augmented by a number of scientific and pictorial slides. Discussion of the paper was opened by John H. Peck, M.D., of Des Moines.

Tuesday evening, March 31, the group was privileged to hear Howard W. Haggard, M.D., professor of physiology, Yale University, discuss Advances in Medicine. The following program which had previously been scheduled for March 31, will be presented Tuesday, April 14: Rheumatic Heart Disease in Children, Lee Forrest Hill, M.D.; The Surgical Treatment of Hypertension, Walter D. Abbott, M.D.; Some Factors in the Management of the Failing Heart, Allen G. Felter, M.D.; and motion pictures on the mechanism of the heart beat and electrocardiography.

N. Boyd Anderson, M.D., Secretary



### Pottawattamie County

Herbert W. Rathe, M.D., of Waverly, was guest speaker for the Pottawattamie County Medical Society at its meeting held Monday, March 16. Dr. Rathe spoke on The Diagnosis of Coronary Disease. Case presentations were given as follows: Hyperinsulinism, Raymond Rice, M.D., of Council Bluffs; Cataract Resulting from Dinitrophenol, Abbott Dean, M.D., of Council Bluffs; and An Unusual Case of Esophageal Disease, McMicken Hanchett, M.D., also of Council Bluffs.

The next meeting will be held Monday, April 20, with Vilray Papin Blair, M.D., of St. Louis, Missouri, speaking on The Correction of Various Types of Facial Deformities.

### Scott County

The Scott County Medical Society held its regular dinner meeting Tuesday, March 3, at the Lend-A-Hand Club in Davenport, at which time Herman L. Kretschmer, M.D., professor of genito-urinary surgery, Rush Medical College, Chicago, was the principal speaker. Dr. Kretschmer spoke on Urologic Conditions in Infancy and Childhood, and illustrated his remarks with lantern slides.

### Tama County

The Tama County Medical Society met in regular session in Traer, Friday, April 3. Twenty-seven physicians and guests were present at the six-thirty dinner served at the Gates Coffee Shop. Maurice Bordewick, attorney of Traer, gave an interesting talk on The Doctor and the Law.

A. A. Crabbe, M.D., Secretary

### Washington County

Tuesday, March 31, the Washington County Medical Society held its monthly meeting at the Nurses' Home in Washington. The scientific program was presented by Clarence VanEpps, M.D., of Iowa City, who conducted a clinic on nervous diseases. This was very much enjoyed by members and guests present.

W. S. Kyle, M.D., Secretary

### Woodbury County

Two outstanding speakers presented the following scientific papers for members of the Woodbury County Medical Society, when that organization met in Sioux City, Thursday, March 12: Mental Diseases Due to Organic Conditions, Charles F. Obermann, M. D., of Cherokee, and Diagnosing the Inflammatory Diseases of the Brain and the Meninges, C. Gregory Barer, M.D., Iowa City.

R. N. Larimer, M.D., Secretary

### Iowa Clinical Medical Society

The annual meeting of the Iowa Clinical Medical Society was held Saturday, March 28, at Iowa City, and the following officers elected: Dr. A. A. Schultz, of Fort Dodge, president; Dr. F. A. Hecker of Ottumwa, vice president; and Dr. Raymond S. Grossman of Marshalltown, secretary and treasurer.

### Iowa and Illinois Central District Medical Association

The spring meeting of the Iowa and Illinois Central District Medical Association was held Thursday, April 9, at the Fort Armstrong Hotel in Rock Island, Illinois. Dinner was served at six-thirty, and the scientific program convened at eight o'clock. William F. Schroeder, M.D., of Rock Island, read a short paper on The Use of Sodium Phenobarbital as a Pre-anesthetic. The address of the evening was delivered by Thomas G. Orr, M.D., of Kansas City, Missouri, professor of surgery at the University of Kansas, on Some Important Factors in Pre- and Postoperative Therapy with Special Reference to Intravenous Infusions.

James Dunn, M.D., Secretary

### Southwestern Iowa Postgraduate Medical Society

Members of the Fremont County Medical Society were hosts to more than one hundred physicians and guests attending the regular meeting of the Southwestern Iowa Postgraduate Medical Society held Thursday, March 5, in Sidney. A unique feature of the program was the fact that ten ten-minute papers, with no discussions, were presented. Carl H. Davis, M.D., professor of obstetrics and gynecology, Marquette University School of Medicine, Milwaukee, Wisconsin, presented a motion picture film on Parturition in Monkeys. The following program was then given by physicians from Omaha: Treatment of the Acute Upper Respiratory Infections, Mose Howard, M.D.; Coronary Disease, George Pratt, M.D.; The Uremia Problem, E. J. Kirk, M.D.; Treatment of the Toxemias of Pregnancy, Earl Sage, M.D.; Treatment of the Acute Prostate, Thomas Boler, M.D.; Emergencies of the Diabetic, Frank Conlin, M.D.; Clinical Value of the Blood Picture, Swen Isaacson, M.D.; Treatment of Highway Accidents, Robert Schrock, M.D.; and Artificial Fever Treatment, A. E. Bennett, M.D.

Ralph Lovelady, M.D., Chairman

### DEATH NOTICES

Townsend, Daniel John, of Lohrville, aged seventy-nine, died suddenly March 27, as the result of heart disease. He was graduated in 1887 from Drake University College of Medicine, and at the time of his death was a life member of the Calhoun County and Iowa State Medical Societies.

Townsend, Smith James, of Gilmore City, aged sixty-seven, died March 5, following a lingering illness. He was graduated in 1892 from Western Reserve University School of Medicine, Cleveland, Ohio, and had long been a member of the Pocahontas County Medical Society.

Williams, James Albert, of Belle Plaine, aged seventy, died March 26, as the result of pneumonia and a heart ailment. He was graduated in 1895 from Bennett College of Eclectic Medicine and Surgery, Chicago, and at the time of his death was a member of the Benton County Medical Society.

# HISTORY OF MEDICINE IN IOWA

*Edited by the Historical Committee*

DR. FRANK M. FULLER, Keokuk

DR. TOM B. THROCKMORTON, Des Moines

DR. JOHN T. McCLINTOCK, Iowa City

DR. WALTER L. BIERRING, Des Moines

DR. PAUL W. VAN METRE, Rockwell City

DR. WILLIAM JEPSON, Sioux City

## History of Drake University College of Medicine\*

FERDINAND J. SMITH, B.S., M.D., Milford, Iowa

(Continued from last month)

In the *Iowa State Medical Record*, Vol. I, page 9, is to be found an address delivered by Dr. C. J. Williamson to the graduating class of 1888, a portion of which follows:

"I need hardly say that the diploma placed in your hands represents no *ism*, *pathy* nor *sect* in medicine. I refer to this because some who know better, and others who do not, will characterize you as 'allopathic' doctors, implying by the term allopathic that you are adherents of a long obso-

down to them from the great lights in medicine, as a doctrine not to be questioned, that diseases were so many distinct entities to be expelled, and which must be expelled by medicines whose properties were in some way intimately related to the entities to be expelled, and that such relation must of necessity be one of *similarity*, *contrariety* or *indifference*. No other relation or mode of action, it was said, was conceivable; hence the terms homeopathy, antipathy and allopathy came into use as descriptive of the modes in which remedies were supposed to act in the cure of disease. Men distinguished for learning and brilliancy of intellect were arrayed in defense of one or another of these propositions, and sought to demonstrate its truth, not by clinical observation, or experiment, but by logical processes. Here then are the origin and significance of the terms which came to designate these sects in medicine. Now, if there is to-day, anywhere a believer in antipathy or allopathy, I am safe in saying nobody knows it. All controversy on these subjects ceased long ago. Homeopathy, too, died the same natural death at the same time, but was revived by Hahnemann some two hundred years later, and made to serve in connection with his fancyism or 'infinitesimalism' and 'spiritualizing' of medicine, and it is now under condemnation of the 'second death.' If therefore any of you expect to be 'allopathic' doctors my advice is return the diploma to the college. It is sufficient that you are known as a physician, or if a distinguishing adjective must be used, let it be the word 'regular' which contains no theory or dogma on the nature of disease, or method of cure."



Fig. 1. Early quarters of the Drake University College of Medicine.

lete dogma or speculation concerning the essence of disease, and the manner in which medicine acts in eliminating it from the system. The sixteenth century was a time of great intellectual activity, and philosophers of that period essayed the solution of the most intricate problems of nature, including those of diseases and their treatment, by means of the logical faculty. It had been handed



Four years later we find the following news item concerning the school in *Vis Medicatrix*, published by Dr. Woods Hutchinson: "The most satisfactory year of the Iowa College of Physicians and Surgeons of Des Moines, was brought to a close by the commencement exercises, held April 7. The doctorate address by Professor Hazen, on the 'Etiquette of the Profession' was clearly professional, and abounded in wholesome advice to the class. Degrees were conferred by Chancellor Carpenter of Drake University, upon a class of nine, two of whom being ladies. Mr. J. H. Stalford was the valedictorian of the class,



Fig. 2. The original Senior Medical Building.

and in choice language gave an earnest and able tribute to the science of medicine. After the exercises the faculty, alumni, students and graduates repaired to the Kirkwood, where a bountiful repast awaited them."<sup>11</sup>

The 1892 catalogue announced that a "dispensary service has been instituted by the college, and is being well patronized. It is under the control of a competent staff composed of faculty members and it affords an abundance of clinical instruction in the various departments, to which students have

access all of the time. Arrangements have been perfected with the management of the Cottage Hospital so that a large amount of bedside instruction will be available in the next college session."

The school year 1894-1895 began September 18, 1894, and closed March 14, 1895. It is noteworthy that for the first time mention was made of laboratory courses in bacteriology, histology and pathology: "Each student will be required to become familiar with the manipulation of the microscope and accessories, to imbed, cut, stain, mount and examine the various tissues and organs of the body and thus acquire practical knowledge of its microscopical structure. Requirement for graduation, three years in school and four years' study including preceptorship."<sup>12</sup> The same catalogue contains the announcement: "The Cottage Hospital has been greatly enlarged and improved during the last year. It is now the largest and most complete hospital in the state, and affords an abundance of clinical material of all kinds. A large amphitheater has been built for the benefit of the class, where all are comfortably seated."

In the fourteenth annual announcement (1895-1896) of the college is a picture of the new building, which housed the departments of medicine and law, and a half-tone engraving of Mercy Hospital, just completed. It speaks of the assistance which this hospital will be to the school in affording clinical material for the instruction of students, and states that the hospital is provided with an amphitheater for convenience in teaching and a laboratory where chemical and microscopical investigations can be made at once when necessary. It describes the new hospital as well lighted, well ventilated, heated by steam, and thoroughly equipped with all modern hospital facilities.

Candidates for admission to the college were required to be graduates of a recognized high



Mercy Hospital, Des Moines

school or to pass an examination showing an equivalent education. They must have attended three lecture courses of six months each, not more than one in any one calendar year. Four years of study were required, the time not spent at school being spent with a preceptor.

In the fifteenth annual announcement (1896-1897) is found for the first time a schedule showing the number of hours devoted to each branch of the basic sciences, in the lecture room and in the laboratory. There were laboratory courses in anatomy, chemistry, a short laboratory course in pathology, and laboratory demonstrations by the department of physiology. A course in histologic laboratory work was also given. The last two years were devoted entirely to the practical branches, partly didactic and partly clinical lectures, and demonstrations in the hospital.

A ruling of the Iowa State Board of Medical Examiners made the above requirements the irreducible minimum to be offered by medical colleges after July, 1898. To graduate, the student must have completed four yearly courses of medical lectures. An exception was made in the case of students having completed three full courses at the end of the school year 1898.

Clinics in surgery were held at the hospital on Wednesday afternoons, in gynecology on Thursday afternoons, and in eye, ear, nose and throat and in general medicine on Friday afternoons.

Beginning with the year 1901-1902, the length of the medical college year was advanced to twenty-six weeks each year. The school prospectus stated that the first term would open on September 18, and the graduating exercises be held on April 27. On June 13 freshman and sophomore examinations closed. It no longer mentioned the necessity of the students having a preceptor. The laboratory work required of students during the freshman year was as follows: chemistry, 120 hours; histology, 60 hours; dissecting, 36 hours (latter part of term); in the sophomore year: chemistry and urine analysis, 60 hours; general pathology, 60 hours; dissecting, 36 hours (latter part of term).

In the year 1902-1903 laboratory work was given in histology, chemistry, physiology, anatomy, bacteriology, pathology, toxicology and physiologic chemistry. Clinical lectures were given in this year by the departments of medicine, surgery, gynecology, genito-urinary diseases, otology, ophthalmology and diseases of the throat and nose. The following announcement appears in the catalogue:

"The college would take it as a great favor if physicians receiving these announcements would

send us such cases as they do not care to be troubled with in their private practices, and cases which to them would be of no pecuniary profit. Hospital accommodations will be furnished all such patients, when necessary, at the nominal price of \$7.00 weekly, which includes board, washing, nursing and everything pertaining to residence and treatment in a hospital."

This was the last year of Dr. Schooler's deanship at the Drake Medical College. He had for years given of his time and energy, unreservedly and unremittingly, and so he thought he deserved a rest from his many efforts in behalf of the college. Had it not been for his enthusiasm and desire to see the college perpetuated, it would have perished long before.

Dr. D. S. Fairchild, who had been with the institution from the very beginning, was appointed to succeed Dr. Schooler. Dr. Fairchild was a very able man, thoroughly conversant with all of the departments of a medical course, having taught nearly every branch of the basic and practical medical sciences. He was a fine lecturer. The heavy teaching burden that he bore during his connection with the veterinary medical college at Ames has been mentioned. At the Drake College of Medicine he taught by turns diseases of the nervous system, principles and practice of medicine, pathology, mental diseases, practice of surgery and clinical surgery. He also gave to the senior students at the Iowa State College a course of lectures on the brain, preparatory to the study of psychology, and all of the students without exception were profoundly interested in this part of the psychology course.<sup>13</sup>

In the late fall of 1903, Dr. Fairchild communicated with Dr. F. J. Smith, his one time student at the Iowa State College, explaining to him that he intended to put the first two college years on a salaried full time teaching basis, and asking if he would be willing to come and help him do this work. It was agreed between Dr. Fairchild and Dr. Smith that the latter would be made dean of the junior college and would be given a free hand in carrying out Dr. Fairchild's plans. Immediately thereafter (January, 1904) Dr. Smith took up advanced work at Heidelberg University, in Germany, in the laboratories of the department of physiologic chemistry, under the direction of Professor Kossel.

(To be continued)

#### REFERENCES

11. *Vis Medicatrix*, p. 347, April, 1892.
12. *Drake University College of Medicine Catalogue*, 1891-1895.
13. The writer was privileged to be a member of one of these classes.



# THE JOURNAL BOOK SHELF

## BOOKS RECEIVED

- DISEASES OF WOMEN**—By Harry S. Crossen, M.D., professor emeritus of clinical gynecology, Washington University School of Medicine; and Robert J. Crossen, M.D., instructor in clinical gynecology and obstetrics, Washington University School of Medicine. Eighth edition, entirely reset, with 1058 engravings. C. V. Mosby Company, St. Louis, 1935. Price, \$10.00.
- THE EVALUATION OF SYMPTOMS**—By Oliver T. Osborne, M.D., professor of therapeutics, emeritus, and formerly clinical professor of medicine, Yale University. Yale University Press, 1935. Price, \$3.50.
- FOR AND AGAINST DOCTORS**—By Robert Hutchison, and G. M. Wauchope. William Wood and Company, Baltimore, 1935. Price, \$2.00.
- THE HUMAN FOOT**—By Dudley J. Morton, associate professor of anatomy, College of Physicians and Surgeons, Columbia University. Columbia University Press, New York City, 1935. Price, \$3.00.
- IMMUNOLOGY**—By Noble Pierce Sherwood, M.D., professor of bacteriology, University of Kansas. Illustrated. C. V. Mosby Company, St. Louis, 1935. Price, \$6.00.
- INFANT NUTRITION**—By William McKim Marriott, M.D., professor of pediatrics, Washington University School of Medicine, St. Louis. Second edition. C. V. Mosby Company, St. Louis, 1935. Price, \$4.50.
- INTERNATIONAL CLINICS, Volume IV, Forty-fifth Series**—Edited by Louis Hamman, M.D., visiting physician, Johns Hopkins Hospital, Baltimore. J. B. Lippincott Company, Philadelphia, 1935.
- MEDICAL TREATMENT OF GALLBLADDER DISEASE**—By Martin E. Refhuss, M.D., clinical professor of medicine, Jefferson Medical College; and Guy M. Nelson, M.D., instructor of medicine, Jefferson Medical College. 465 pages with 113 illustrations. W. B. Saunders Company, Philadelphia and London, 1935. Price, \$5.50.
- THE NATIONAL FORMULARY**—Sixth edition prepared by the Committee on National Formulary by authority of the American Pharmaceutical Association. Official from June 1, 1936. Published by the American Pharmaceutical Association, Washington, D. C., 1935.
- NEW PATHWAYS FOR CHILDREN WITH CEREBRAL PALSY**—By Gladys Gage Rogers, and Leah C. Thomas. The Macmillan Company, New York City, 1935. Price, \$2.50.
- NURSERY EDUCATION-THEORY AND PRACTICE**—By William E. Blatz, M.A., M.B., Ph.D., professor of psychology, University of Toronto, director, St. George's School for Child Study. William Morrow and Company, New York, 1935. Price, \$3.50.
- THE PARATHYROIDS IN HEALTH AND IN DISEASE**—By David H. Shelling, M.D., Johns Hopkins University and Hospital. Illustrated. C. V. Mosby Company, St. Louis, 1935. Price, \$5.00.
- PRESCRIPTION WRITING AND FORMULARY**—By Charles Solomon, M.D., assistant clinical professor of medicine, Long Island College of Medicine. J. B. Lippincott Company, Philadelphia, 1935. Price, \$4.00.
- THE SPECIAL PROCEDURES IN DIAGNOSIS AND TREATMENT**—By Don Carlos Hines, M.D., clinical instructor in medicine, Stanford University. Published by the Stanford University Press.
- SURGERY: QUEEN OF THE ARTS**—By William D. Haggard, M.D., professor of clinical surgery, Vanderbilt University School of Medicine, 389 pages with 41 illustrations. W. B. Saunders Company, Philadelphia and London, 1935. Price, \$5.50.

## BOOK REVIEWS

### THE DOCTOR AND THE PUBLIC

By James Peter Warbasse, M.D., Brooklyn, New York. Paul B. Hoeber, Inc., New York, 1935. Price, \$5.00.

The timeliness of this discussion will be appreciated by all physicians. It is apparent that this author has placed himself in a position as a competent observer because of the very extensive factual background secured for this study. His aim is to correlate medical science and the public welfare, since he rationally views the problem as one of adjustment or adaptation on the premise that a change in medical practice is inevitable. He has attempted by an analysis of past experience and of present conditions to suggest a program of medical practice which will satisfy the demands of the physician and at the same time render a more acceptable service to the public.

If we are willing to accept the history of the evolution of medical practice as retold by the author, it would appear that the medical practice of the future can be predetermined with fair accuracy. Through the pages of this highly fascinating volume, the author develops his historic background, indicating the steady trend of medicine toward a more scientific and accurate practice, and suggesting at the same time the ever-increasing tendency toward group practice. One would conclude that the author foresees for the future a socialization in medicine fostering the group plan of practice where greater indi-

vidual professional efficiency may be attained, and at the same time the ultimate cost to the public may be reduced.

The book is recommended for the thoughtful attention of all physicians.

### CLINICAL DIAGNOSIS BY LABORATORY METHODS

By James Campbell Todd, M.D., late professor of clinical pathology, University of Colorado; and Arthur Hawley Sanford, M.D., professor of clinical pathology, University of Minnesota. Eighth edition, thoroughly revised; 792 pages with 350 illustrations. W. B. Saunders Company, Philadelphia and London, 1935. Price, \$6.00.

Since 1908, when the first edition of this treatise appeared, no work has been held in higher esteem by laboratory technicians as a reference guide to daily work. In the earlier editions the author reviewed only the more common procedures, inasmuch as the text was originally devised for the non-professional laboratory technician. In later editions the scope of the work has been expanded so that in the present eighth edition we find a well-rounded, thorough, and comprehensive, discussion of laboratory methods and their interpretation suitable both for the laboratory

technician, the clinician, and the director of the clinical laboratory.

Appropriate sections are devoted to the laboratory examination of the sputum, the urine, the blood, the gastric and duodenal contents, the feces, and various body fluids. A full chapter is devoted to clinical chemistry, another to serodiagnostic methods, and others to bacteriologic methods and vaccines. The physician requiring an exact and comprehensive guide to the methods of clinical diagnosis by laboratory procedure would do well to provide himself with this revised text.

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### INTERNATIONAL CLINICS

Volume III, Forty-fifth Series. Edited by Louis Hamman, M.D., visiting physician, Johns Hopkins Hospital, Baltimore. J. B. Lippincott Company, Philadelphia, 1935.

Outstanding in this issue are articles dealing with renal functions, the relationship of allergy to migraine, clinical aspects of arteriosclerotic heart disease (by Fred M. Smith, M.D., Iowa City, Iowa), and rheumatoid atrophic arthritis. In the section dealing with surgical subjects a very practical clinic deals with the therapeutic problems in intestinal obstruction. The last three clinics reflect the recent progress in ophthalmology and otolaryngology, discussing the ocular manifestations of blood diseases, the ocular manifestations of diabetes mellitus, and a review of radiology and roentgenology as applied to otolaryngologic practice.

Each volume in this series contains numerous black and white and colored illustrations. Each volume carries its own separate index.

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### DISEASES OF WOMEN

By Harry S. Crossen, M.D., professor emeritus of clinical gynecology, Washington University School of Medicine; and Robert J. Crossen, M.D., instructor in clinical gynecology and obstetrics, Washington University School of Medicine. Eighth edition, entirely reset, with 1,058 engravings. C. V. Mosby Company, St. Louis, 1935. Price, \$10.00.

Since the first edition of this valuable work appeared nearly thirty years ago, Crossen's Diseases of Women has been widely used as a textbook for medical teaching and as a reference book for the general practitioner. The last general revision of this work occurred some five years ago, and in the author's opinion the present revision was demanded chiefly because of the extensive information which has been accumulated concerning the effect of the endocrines on the various physiologic functions, particularly relating to menstruation and ovulation. The first three chapters of the work have been entirely rewritten, introducing this new material and bringing the subject entirely up to date.

This complete encyclopedic discussion of diseases of women should be in the hands of every physician practicing obstetrics. The authors have certainly attained an avowed purpose in presenting this subject in its entirety, and with clearness, assuring ready understanding and application required in bedside work.

This eighth edition contains over one thousand engravings and one colored plate.

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### COMMON CONTAGIOUS DISEASES

By Philip Moen Stimson, M.D., assistant professor of clinical pediatrics, Cornell University Medical College. Second edition, thoroughly revised; illustrated with 53 engravings and three plates. Lea and Febiger, Philadelphia, 1936. Price, \$4.00.

This is a second edition of a compact and handy book presenting a clear and concise discussion of the more common contagious diseases—one which has already proved its worth. The author has attempted to bring the material entirely up to date by presenting the newer concept of certain contagious diseases, such as whooping cough, poliomyelitis, diphtheria and smallpox. This manual admirably meets the needs of the general practitioner, the pediatrician, the school physician and school nurse, as well as the educated layman.

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### THE EVALUATION OF SYMPTOMS

By Oliver T. Osborne, M.D., professor of therapeutics, emeritus, and formerly clinical professor of medicine, Yale University. Yale University Press, 1935. Price, \$3.50.

Diagnosis in the modern scheme of practice frequently resolves itself into routine and special laboratory tests as generally employed in hospital practice. Physicians of an older school, of necessity, relied more largely upon history and physical examinations of the patient to establish diagnosis. The author of this small volume was educated and practiced in his early years without the aid of laboratory methods of precision. His active practice and interest has, however, carried him into this more recent epoch in medical development in which the laboratory figures so prominently. Because of this background it seems particularly fitting that Dr. Osborne should write on the evaluation of symptoms since his bias for either the old or the new school must be tempered by his experience and respect for the other system. While this subject does not lend itself readily to a didactic form of presentation the author has attempted to classify the many conditions discussed and symptoms evaluated so that the work may be readily consulted as a reference source. While every physician can gain materially by reading this summation of fifty years' experience in clinical medicine, it is commended particularly to the newer graduates and young practitioners whose personal experience may not have yet provided a sane viewpoint concerning the value of the several means employed in diagnosis.



### THE AUTONOMIC DISEASES OR THE RHEUMATIC SYNDROME

By T. M. Rivers, M.D. Dorrance & Company, Philadelphia, 1935. Price, \$3.00.

The author of this book determined to do some original research in an effort to discover something about the nature of arthritis, and if possible to improve on the method of treatment. His work led him rather far afield and he delved into autonomic diseases, becoming impressed with the wide field occupied by this branch of the nervous system and its responsibility for the aches and ills of mankind. As causes of autonomic diseases, he lists certain agents, acting either directly on the tissues or through the autonomic system. These can be drugs, foreign proteins, amines, hormones, emotional states, and various other agents.

Numerous statements are made with which one might wish to argue or to ask fuller explanation; such as, his definition of migraine as an allergic disease. Vaughan states that allergy is only one of the causes of migraine. In discussing the treatment of epilepsy the author says, "The surgical treatment by which parts of the colon may be resected is the most dependable treatment and promises to do much for these unfortunates, as the diagnosis and methods of performing these operations are perfected."

In his chapter on angina pectoris he gives 1772 as the year in which Heberden published his description of the disease. Every other reference to this classical paper, with which the reviewer is familiar, gives its date as 1768. The treatment of a ruptured left ventricle is stated to be prophylactic, a statement which speaks for itself. There are numerous mistakes in spelling, and the author frequently is a bit involved in his English, and he expresses himself rather clumsily.

The binding of the book is cheap, and not up to the usual standards for a professional library.

F.R.H.

### FOR AND AGAINST DOCTORS

By Robert Hutchison and G. M. Wauchope. William Wood and Company, Baltimore, 1935. Price, \$2.00.

This small volume, a medical anthology, reflects opinions both in praise and in condemnation of physicians. The quotations have been selected solely from the lay literature and reflect opinions of distinguished writers from the earliest times. Many of the quoted expressions have established themselves as medical proverbs and are more or less familiar to all—others are but little known. The authors have conveniently divided their material chronologically, quoting originally from the literature of the ancient; then from a medieval period; next from the fifteenth to seventeenth centuries; and, finally, the eighteenth century and the nineteenth century. The avowed purpose of the volume is, through quotations, "To see ourselves through the eyes of others."

### THE HUMAN FOOT

By Dudley J. Morton, professor of anatomy, College of Physicians and Surgeons, Columbia University. Columbia University Press, New York, 1935. Price, \$3.00.

This book is divided into three portions, the first of which traces the development of the foot from the first appearance of such an appendage in the lower animals to its final development in man. This portion is by far the most fascinating of the three divisions and would be interesting to physicians and laymen alike even if they had no interest in foot ailments and their treatment.

The second division of the book considers the physiology of the normal human foot. In reading this section one is impressed not only with the anatomic knowledge of the author but also with his engineering skill, of which there is considerable evidence. One very seldom sees this characteristic in medical men.

Part three deals with the functional disorders of the human foot and gives a clear picture of many which were previously vague. Obtaining the material for this section has required a great deal of painstaking investigation which would have been valueless without the sound judgment evident in its evaluation and preparation.

This volume would be an interesting addition to any physician's library and especially valuable to the general practitioner and orthopedist.

### KEY TO SYMPTOMATOLOGY, BOOK II, DERMATOLOGIC DISEASES

By D. D. Stonecypher, Nebraska City, Nebraska. Key System, Publishers, Nebraska City, Nebraska, 1935. Price, \$10.00 a volume.

At an earlier date and in this section previous volumes of this key system have been reviewed. This volume, covering dermatologic conditions, follows the original plan in offering the physician a device which should refresh his knowledge concerning the significance of various symptoms observed and directing his attention to the probable diagnosis. This is accomplished by a series of cards which bear a tabular designation, indicating a symptom, which may be elicited by the physician. By means of a master card the perforated symptom cards reveal in appropriate windows the conditions which must be considered.

It is not the author's purpose that this system should be used as a mechanical method of diagnosis and be relied upon as such by the physician. It is supposed, rather, that the Key To Symptomatology will supplement the physician's diagnostic skill and perhaps eliminate those errors which might otherwise creep in through lack of thorough consideration of certain possibilities suggested by the patient's symptoms.

The Key to Symptomatology deserves careful investigation, particularly by the general practitioner.

# The JOURNAL

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### THE TREATMENT OF DIABETES WITH PROTAMINE INSULIN

EDWIN B. WINNETT, M.D., F.A.C.P.,  
Des Moines

History records remarkable periods of advancement in the treatment of diabetes mellitus, which Joslin<sup>1</sup> for convenience divided into eras. The Naumyn era, characterized by overnutrition and a high fat diet, reigned supreme until 1914. Allen's undernutrition era with starvation regimes, remained in vogue until 1922, when a new era dawned, ushered in by the discovery of insulin by Banting and Best. We now enter another period, the Hagedorn-Protamine era, named after H. C. Hagedorn of the Steno Memorial Hospital in Copenhagen. Many predict that it holds the greatest happiness for diabetic patients, because of further improved therapeutics. These eras might rightfully be combined into one, the Joslin-combined era, since Joslin's contributions stand paramount during the entire period.

#### BANTING-INSULIN ERA

With the introduction of insulin by Banting and Best in 1922 we commanded a substance capable of normally metabolizing carbohydrates. Necessity demanded standardization of potency. Large variations in volume administration required solutions of different concentrations. Many problems remained for solution. Proper time relationships between the administration of food and insulin gradually became better understood. After the standardization of insulin more reasonable estimates of the amount of insulin necessary for burning a given quantity of glucose were established. Its startling action in diabetic coma came only after fundamental knowledge increased. Some wondered whether insulin would produce complications. The early cost to a patient in moderate circumstances was prohibitive, but it soon became available to everyone. The rate of food absorption and glucose metabolism modified insulin therapy. Gastric retention with delay in circulatory absorption, diarrhea with lowered carbohydrate assimilation,

or vomiting might lead to an insulin reaction. Similarly, muscular exercise, requiring the burning of glucose in the muscles not allowed for in calculating the necessary amount of quickly acting insulin, might cause hypoglycemia. Variations in the rate of absorption of different foods required consideration. The rôle of certain glands of internal secretion, such as the pituitary, thyroid and adrenal glands, in glucose metabolism still remains a mystery. Our insulin experiences have answered many questions. Diabetes, in its less severe forms, can be controlled adequately. Patients in diabetic coma will recover under proper management, if the condition is recognized and treated early. However, we encounter considerable more difficulty in maintaining suitable blood sugar levels in patients with the more severe type of diabetes.

Theoretically insulin should be supplied in the blood stream in adequate amounts and at proper rates to burn sufficient glucose from the ingested foods to maintain a normal blood content and sugar free urine; but the adequate amount and the proper rate have not yet been absolutely determined. No one knows exactly how much glucose one unit of insulin will burn. If the patient is given enough insulin before breakfast to burn the glucose entering the blood stream from that meal, he may experience hyperglycemia with glycosuria at ten o'clock in the morning, or hypoglycemia with an insulin reaction at eleven o'clock. If enough insulin is given before the evening meal to burn the glucose entering the circulation from that meal, hypoglycemia and a resultant reaction may occur at any time between ten o'clock at night and morning. Insulin reactions occurring at night are unusually alarming to all concerned, especially when they take place in children. In still other patients with the severe type of diabetes, insulin given before the evening meal burns glucose from that meal, but about ten or eleven o'clock at night the blood sugar begins to rise so that during the early morning hours heights of 600 milligrams per 100 cubic centimeters of whole blood, or higher,



may be reached. In order to control such wide fluctuations in blood sugar content, a dose of insulin was often ordered for bed-time or later in the night. Even with four or five doses of insulin a day many diabetic patients show a high blood sugar content with glycosuria in the morning. Too many injections of insulin during the twenty-four hour period become burdensome for the patient. In many of them insulin shock occurs without warning during the day. With regular insulin then we have not accomplished all we had hoped for, especially in those patients with the more severe type of diabetes.

#### HAGEDORN-PROTAMINE ERA

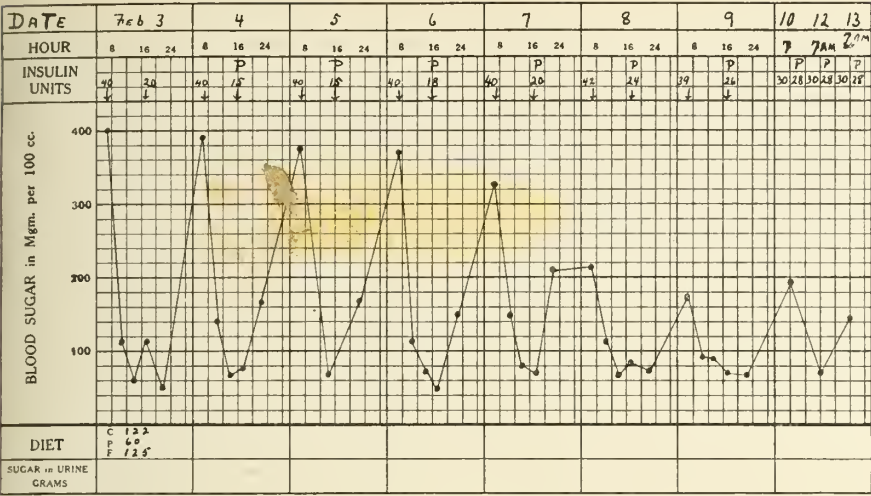
Research has been conducted along numerous lines in an effort to overcome the wide fluctuations of blood sugar, with hyperglycemia occurring during one part of the day, and hypoglycemia appearing during the other part. Substitutes for insulin have been sought. Others have searched for some substance which, when combined with insulin, would prolong its action and lower the blood sugar content more gradually by causing slower absorption from the subcutaneous depot after injection. Insulin has been mixed with gum arabic, adrenalin, tannic acid, ferric chloride, oil, and many other substances, but the desired results were not obtained. Not until Hagedorn and his associates<sup>2</sup> developed a substance called protamine did we have a preparation to control absorption. This mixture termed "protamine insulinate" is being produced at present for clinical trial in the United States by Eli Lilly and Company, and is named by them "protamine insulin."

Protamine insulin is prepared by the addition to insulin of a protamine isolated by Hagedorn from the sperm of trout (species *Salmo iridius*) which forms a compound, slowly soluble in body serum. This compound is broken down and insulin is liberated slowly into the blood stream. This new preparation as supplied for clinical trial consists of a small vial containing protamine to be added to five cubic centimeters of U-50 insulin. The resultant mixture corresponds to the unit strength of U-40 insulin. The protamine buffered solution must be added from a cold sterile syringe. It should be added slowly and mixed gently to avoid frothing. Before each injection the mixture should be shaken in order to get the aliquot proportion of insulin and protamine at each dose. After adding the protamine to the insulin the solution appears turbid. It is advisable to allow it to stand for twenty-four hours before using. Protamine insulin is administered subcutaneously in the same manner as regular insulin, and cannot be used intravenously. From the de-

pot of injection absorption takes place slowly into the circulation. The same precautions should be observed to change the site of injections as with regular insulin.

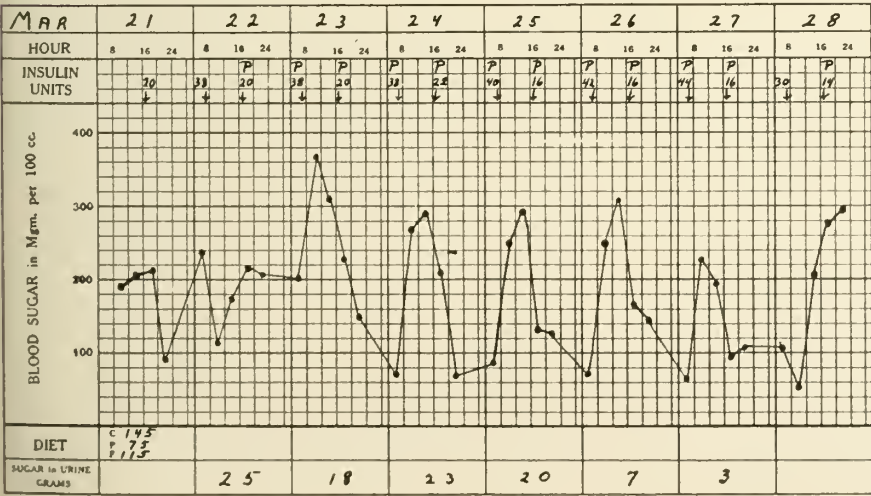
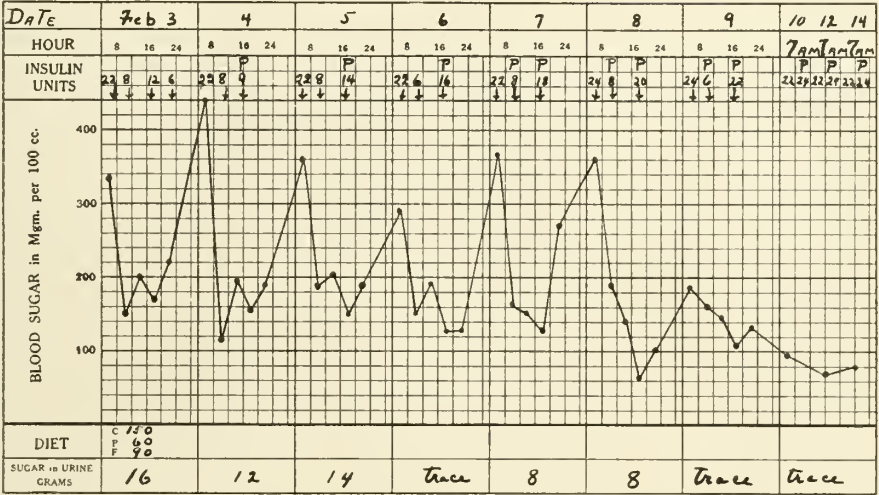
The following four cases are presented to show the effect of protamine insulin. In all instances the blood sugar determinations were made at 7:00 A. M., 11:00 A. M., 2:00 P. M., 5:00 P. M., and 10:00 P. M., because this schedule conformed with others using protamine insulin, and because more accurate blood sugar information can be obtained at these hours. The type of record is patterned after the methods used by other workers in this field. The blood sugar determinations in graphs Nos. 1 and 2 were done in the laboratory of the Iowa Methodist Hospital, and No. 3 in the laboratory of the Iowa Lutheran Hospital, capillary blood being employed in both cases. The blood sugar determination in graph No. 4 was done in my laboratory, and I used venous blood. The use of protamine insulin is indicated by the letter P above the unit dosage.

Case No. 1. A maiden lady, thirty-two years of age, first presented herself in 1921 complaining of polyphagia, polydipsia, polyuria, and a fifteen pound weight loss of six months' duration. The urine gave a strong sugar reaction. Hospitalization was advised but refused. A large carbuncle on the right leg caused her to return in 1923. The urine then showed eight per cent sugar with acetone four plus. She accepted hospitalization, the carbuncle healed, and on discharge her insulin requirement was 10-10-10. She was seen at intervals until December, 1935, when a respiratory difficulty required readmission. During her hospital stay, sugar, acetone and diacetic acid were positive until four days before her discharge on December 14. At that time her insulin requirement was 36-0-22. She then resumed her occupation and worked until January 2, 1936, when she was again admitted to the hospital. A bronchoscopic examination by Dr. J. A. Downing showed a stenosis at the second bifurcation of the right main bronchus. Previous repeated sputum examinations were reported negative for Koch bacillus; however, acid fast staining of pus, aspirated bronchoscopically from a lung abscess, readily revealed the tubercle bacillus. From January 2 until both protamine insulin and regular insulin were used, she showed sugar daily. The insulin dosage was changed about without success. For a few days she received 44-5-32-5 (10:00 P. M.). Reactions occurred. If the insulin was raised before breakfast she developed insulin shock in the late forenoon. She would show sugar at 10:00 A. M. and a reaction at 11:00 A. M. If the interval between breakfast and insulin was extended the insulin re-



Case No. 1. Note the wide variation of blood sugar content on February 3 when regular insulin was being used. These wide variations continued for three days after protamine insulin was begun on February 4. On the fourth day the wide excursions began to decrease, and continued to do so until the ninth day when the blood sugar determinations ranged almost within normal limits. During the three subsequent days the morning readings were practically normal.

Case No. 2. Note the wide variations in the blood sugar curve on February 3, when regular insulin was being used. Protamine insulin was begun on the second day, February 4, before the supper meal. After five days' administration the blood sugar determinations showed only slight variations during the twenty-four hour period, and were almost within normal limits on February 9. During subsequent days the morning blood sugar readings were within normal limits. Note that when protamine insulin was used it was possible to reduce the number of injections from four to two a day.



Case No. 3. Note that the blood sugar content is better controlled when regular insulin is used. In this case protamine insulin was tried both morning and evening. Note also that the blood sugar content is better controlled between 5:00 P. M. and 7:00 A. M., and that protamine insulin given in the morning did not control the blood sugar content during the day. A reaction occurred on February 28, when a change was made to protamine insulin. The quick rise of the blood sugar content after dinner on the same day is interesting. The graph illustrates the failure of protamine insulin to control the blood sugar content when it is used alone.



action came earlier. Protamine insulin seemed indicated. Here we have an ideal patient for the use of protamine insulin as a clinical trial. The results appear in graph No. 1.

Protamine insulin was begun on February 4, as indicated by the letter P above the unit dosage. Regular insulin was given in the morning and protamine in the evening. The wide variations continued for three days under this regime. On the fourth day (February 7), the variations were lessened and continued to decrease steadily until the ninth day when the blood sugar content approximated normal. During the three subsequent days the morning blood sugars were almost normal. During the next six weeks four daily urine specimens showed only an occasional trace of sugar. The patient has had no reactions at any time since protamine therapy was instituted; however, there has been a slight increase in the amount of protamine insulin necessary.

Case No. 2. A married woman, thirty years of age, was referred in May, 1925, because of a thirty-eight pound weight loss in six months. She complained of exhaustion and a cough of two months' duration. Glycosuria was discovered nine months previously when furunculosis developed, and her physician placed her on a limited carbohydrate diet. The family history was not significant; physical examination showed a moderately nourished female with bronchiectasis. The urine examination revealed two per cent sugar with acetone two plus. A modified Folin-Wu blood sugar determination read 160 milligrams per 100 cubic centimeters of whole blood. Diabetic management was instituted, and on discharge from the hospital, six units of insulin were necessary before breakfast on a diet of carbohydrate, 95; protein, 50; and fat, 175. On August 25, 1931, the patient was readmitted to the hospital complaining of severe abdominal cramps. Respirations were slow and labored. Sensorium appeared normal. The urine examination disclosed two per cent sugar with acetone four plus, and diacetic acid four plus. Insulin was given every hour with the necessary supplementary glucose. After three days all pre-coma symptoms had disappeared. She was discharged two weeks later on a diet of carbohydrate, 100; protein, 60; fat, 175; and insulin 26-0-10-14 (1:00 A. M.), weighing 125 pounds.

In 1932 an office check-up revealed a blood sugar content of 135 milligrams per 100 cubic centimeters of whole blood at 11:00 A. M. She had changed her insulin to 16-0-20-3 (1:00 A. M.). The patient reported that she felt well, and had had no reactions. In November, 1932, she complained of insulin reactions about 10:00 A. M. Blood specimens taken at 11:00 A. M., contained

.06 milligrams of sugar per 100 cubic centimeters of whole blood. Dental extraction followed by an infection caused her hospitalization again in 1934 when the blood sugar content was 400 milligrams per 100 cubic centimeters of whole blood. She left the hospital with an insulin dosage of 18-18-10-10-5 (1:00 A. M.) and a diet of carbohydrate, 110; protein, 60; and fat, 150. She was again hospitalized on December 17, 1934, because of otitis media. She was discharged three days later with an insulin dosage of 28-18-12-6 (1:00 A. M.). The diet remained the same. On January 23, 1936, rehospitalization became necessary because of otitis media. She was placed on a diet of carbohydrate, 150; protein, 60; and fat, 110; totaling 1830 calories. Considerable difficulty was encountered in controlling the diabetes. The initial insulin dosage was 20-12-12-8 (1:00 A. M.). In spite of insulin juggling during the subsequent thirteen days, urinary sugar could not be adequately controlled. (See graph No. 2.) The wide variations in the blood sugar content when the regular insulin dosage of 22-8-12-6 was used, will be noticed on February 3. On February 4, protamine insulin was begun before the evening meal. After five days' administration the blood sugar determinations showed only slight variations during the twenty-four hour period, and were almost within normal limits as shown on February 9. During subsequent days the morning blood sugar contents were within normal limits. Note that with protamine insulin, the dosage was reduced from four to two injections a day.

Case No. 3. A married lumber dealer, twenty-six years of age, entered the Iowa Lutheran Hospital, January 13, 1925, with complaints of nervousness, prolonged vertigo, insomnia, and double vision. Four weeks previous to admission a diagnosis of influenza was made because of aching, malaise, and fever. This continued for three days. He then felt normal until two weeks before admission when vertigo and his entrance complaint symptoms developed. An abstract of his clinical history showed pneumonia at five years, and influenza at twenty years. In June, 1923, urinary sugar was discovered. The treatment consisted of starch and sugar reduction. His temperature was 102 degrees, pulse 110, respirations 20. He acted confused. After a physical examination a diagnosis of encephalitis and diabetes was made. Diabetic regulation with insulin was started. On February 2, 1925, he was discharged weighing 131 pounds on a diet of carbohydrate, 70; protein, 60; and fat, 210; with an insulin dosage of 8-0-6. His general condition was much improved. On June 22, 1925, he returned for a diabetic check-up. He felt well and no sequels of the encephalitis re-

maintained except a hesitant speech and slow deliberate movements of the hands and feet. The insulin requirement had increased to 15-0-15. I did not see him again until February 2, 1928, when he returned weighing 140 pounds for another check-up. The diet was changed to carbohydrate, 90; protein, 75; and fat, 175; with an insulin dosage of 20-2-20. During the interval he received treatment in an oxygen car elsewhere. On April 5, 1929, he weighed 151 pounds and his insulin dosage was changed to 16-14-16. On December 4, 1929, he suffered a fractured patella. Following open reduction with gas anesthesia he was discharged on a diet containing carbohydrate, 95; protein, 75; and fat, 175; with an insulin dosage of 20-0-18. He lost seven pounds. During the next five years he was frequently rechecked. The insulin requirement was gradually raised. Gain in weight was marked. In October, 1934, his weight

NAME	Mrs. M. G.										DR. F. B. Winnett										ROOM 532				NUMBER Case 4																
DATE	March - 17										March - 18										March - 19										March - 20										
HR	10		2		8		7		24		10		2		8		7		24		10		2		8		7		24												
VOIDED	A.M.	P.M.	P.M.	A.M.	Hr.	A.M.	P.M.	P.M.	A.M.	Hr.	A.M.	P.M.	P.M.	A.M.	Hr.	A.M.	P.M.	P.M.	A.M.	Hr.	A.M.	P.M.	P.M.	A.M.	Hr.	A.M.	P.M.	P.M.	A.M.	Hr.											
URINE AMT	1000		600		25		S		835		100		550		150		S		1150		150		200		500		S		1000		200		100		300		S		1000		
SPEC. GRAV.	1.015								1.015										1.015										1.015								1.015				
REACTION	0								0										0										0								0				
ALB.	0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0				
ACET.	0		0		0		0		0		0		0		0		0		0		0		0		0		+		+		0		0		0		0				
DIAC.	0		0		0		0		0		0		0		0		0		0		0		0		0		+		+		0		0		0		0				
SUGAR	%		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0				
TOTAL	0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0				
CAL. PER KG.	30																																								
DIET	C	125										125										125										125									
	P	65										65										65										65									
IN	F	150										150										150										150									
	GRAMS	2110										2110										2110										2110									
GLUC.	UNITS	177.7										177.7										177.7										177.7									
	PREP.	100										100										100										100									
INSULIN	PREP.	100										100										100										100									
WEIGHT	156 1/2										156 1/2										156 1/2										156										
BLOOD SUGAR	Hour	7 AM 11 AM 2 PM 5 PM 10 PM																																							
	%	110 133 160 133 160																																							
Wasserman	Negative										Stool Negative										Height 5 ft. 7 in.										Standard Wgt. 144 lbs.										
Cholesterol																															Mac. Exam.										

Case No. 4. Note the normal blood sugar curve on this patient with a mild type of diabetes. A change was made from regular insulin, two injections daily, to protamine insulin, one daily injection. For three days sugar was found in urinary specimens, indicating the apparent loss of control. Note the decrease in the dosage of protamine insulin. No blood sugar determinations were made after the first day.

had increased to 161 pounds, and his insulin dosage was 42-0-17. During the next year he had difficulty in remaining sugar free without reactions. At a subsequent examination in May, 1935, the diet was changed to carbohydrate, 145; protein, 75; and fat, 110; with an insulin dosage of 57-5-22.

Since that time he has found it very difficult to maintain a normal urine without reactions. He tried timing the insulin at home. The reactions occurred without warning. He said he felt much safer to test the urine and show sugar, but even with urinary sugar present he would have violent reactions at times. On March 21, 1936, he entered the hospital again to try the effect of protamine insulin. The physical examination showed a well nourished man, normal in every respect except for the residual of his previous encephalitis which manifested itself in a slowing of movements and speech.

Protamine insulin was started on March 22 in conjunction with regular insulin. The graph illustrates its failure to regulate the blood sugar content during the day, and the proper regulation during the night. Blood sugar determinations taken at 8:00 A. M. were normal after the second day's use of protamine insulin. This patient demonstrates the necessity of using regular insulin in conjunction with protamine insulin in this type of diabetes.

Case No. 4. A widow, sixty-two years of age,

DATE		March - 21										March - 22										March - 23										March - 24									
HR	VOIDED	10	2	8	7	24	10	2	8	7	24	10	2	8	7	24	10	2	8	7	24	10	2	8	7	24															
		A.M.	P.M.	P.M.	A.M.	Hr.	A.M.	P.M.	P.M.	A.M.	Hr.	A.M.	P.M.	P.M.	A.M.	Hr.	A.M.	P.M.	P.M.	A.M.	Hr.	A.M.	P.M.	P.M.	A.M.	Hr.															
URINE AMT.		300	150	350	8	1350	150	50	150	3	1100	25	150	100	9	800	100	150	150	3	1150																				
SPEC. GRAV.		1.012				1.012					1.012					1.012										1.011															
REACTION		0				0					0					0										0															
ALB.		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0															
ACET.		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0															
DIAC.		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0															
SUGAR	%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0															
TOTAL		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0															
CAL. PER KG.																																									
DIET	C	125					125					125					125					125																			
	P	65					65					65					65					65																			
IN	F	150					150					150					150					150																			
	GRAMS	2110					2110					2110					2110					2110																			
GLUC.	UNITS	177.7					177.7					177.7					177.7					177.7																			
	PREP.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0															
INSULIN	PREP.	0					0					0					0					0																			
WEIGHT		156 3/4					155 1/2					155					155					155																			
DATE		March - 25										March - 26										March - 27										March - 28-29									
HR	VOIDED	10	2	8	7	24	10	2	8	7	24	10	2	8	7	24	10	2	8	7	24	10	2	8	7	24															
		A.M.	P.M.	P.M.	A.M.	Hr.	A.M.	P.M.	P.M.	A.M.	Hr.	A.M.	P.M.	P.M.	A.M.	Hr.	A.M.	P.M.	P.M.	A.M.	Hr.	A.M.	P.M.	P.M.	A.M.	Hr.															
URINE AMT.		50	125	150	8	950	25	250	300	8	700	50	125	150	3	1000																									
SPEC. GRAV.		1.011				1.011					1.011					1.012																									
REACTION		0				0					0					0																									
ALB.		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0															
ACET.		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0															
DIAC.		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0															
SUGAR	%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0															
TOTAL		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0															
CAL. PER KG.																																									
DIET	C	125					125					125					125					125																			
	P	65					65					65					65					65																			
IN	F	150					150					150					150					150																			
	GRAMS	2110					2110					2110					2110					2110																			
GLUC.	UNITS	177.7					177.7					177.7					177.7					177.7																			
	PREP.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0															
INSULIN	PREP.	0					0					0					0					0																			
WEIGHT		154 3/4					155 3/4					155 1/2					155					155				154 3/4															



was referred December 4, 1930. She complained of polyuria and easy fatigue. A history of diabetes of nine years' duration was obtained. The physical examination revealed a moderate cardiac hypertrophy and congestion of the lung structure of both lower lobes. A tumor was found in the right upper quadrant of the abdomen. It was smooth, firm, and moved with respiration. It extended to the umbilicus and had been diagnosed as an enlarged liver. The blood sugar reading was 200 milligrams per 100 cubic centimeters of whole blood. The urine contained sugar without acetone. She was placed on a diabetic regime. On her discharge, December 25, 1930, the insulin requirement was five units before breakfast. No decrease in the size of the liver had occurred. She was seen at infrequent intervals until June 5, 1935, when she was readmitted to the hospital for a checkup because of inadequate control of the diabetic condition. The size of the liver was unchanged. The blood presented a negative Wassermann reaction. On her discharge June 11, 1935, her diet was composed of carbohydrate, 125; protein, 65; fat, 150; and her insulin dosage was 10-10-10. On March 16, 1936, she re-entered the hospital complaining of pain in the right upper quadrant. The physical examination was again negative except for the enlarged hard smooth liver extending to the navel. The blood contained 205 milligrams of sugar per 100 cubic centimeters of whole blood, some of which was spilling in the urine. The blood sugar determinations on March 17 were normal during the twenty-four hour period. (See graph No. 4.) On a diet of carbohydrate, 125; protein, 65; and fat, 150, insulin was given. On March 19, twenty units of protamine insulin were given before breakfast. On March 20, urinary sugar was found in three specimens examined. On the two succeeding days urinary sugar was present, so twenty units of protamine insulin were given before breakfast. On March 25, the urine showed a trace of sugar. The dosage of protamine insulin was raised to eighteen units, and on March 26 urinary sugar was present. The dosage was again raised to twenty units, and specimens of urine examined two hours after each meal were sugar free during the remainder of her stay in the hospital. After this eighteen units of protamine insulin were given before breakfast daily. The patient was discharged on March 29, 1936. The liver had decreased in size until it was one finger below the costal margin.

#### DISCUSSION

These cases appear to indicate that protamine insulin is absorbed into the general circulation more slowly than regular insulin. As a result the

physiologic action of protamine insulin starts more gradually and extends over a longer period of time than regular insulin. Therefore protamine insulin should not be used in coma or pre-coma states where quick action is demanded. When a reaction does occur from protamine insulin, as it did in three of these patients, it takes place more slowly and gives additional time for the patient to obtain the necessary carbohydrates. A gradual development of a reaction will be a great consolation to those patients who ordinarily react suddenly to shock. Reactions do not always occur as described, with nervousness, double vision, excess perspiration, and other usual manifestations. A few patients suddenly lose consciousness without warning. Reactions occurred in three of the patients here reported. All developed slowly, and sufficient time elapsed after the warning to procure some form of available carbohydrates to build up the glucose in the blood stream. No reactions occurred at night during sleep, and I am anxious to know the experience of others with reactions at night. This information is especially important because deaths from regular insulin dosage are being reported. Changes in the central nervous system from convulsions due to hypoglycemia have been found in experimental animals. No local skin or subcutaneous reactions nor anaphylaxis could be demonstrated in the patients here reported.

Protamine insulin in conjunction with regular insulin may be used to advantage in the case of severe diabetes where the blood sugar content is usually high in the early morning hours. We may find that patients with wide fluctuations of blood sugar curves during the day will require regular insulin for the peak of these curves, and that protamine insulin will take care of the fluctuations from 4:00 or 5:00 P. M. until morning. Such conditions are well illustrated by the first and second reported cases. It is important when using both insulins to take into consideration the prolonged action of protamine insulin, so that reactions may be avoided. This is especially true in the morning when an overlapping of the hypoglycemic action of the night dose is added to that of regular insulin given before breakfast. Protamine insulin met with little success in the third case. More time is required to control the diabetes when protamine insulin is used, and when the change is made from regular insulin to protamine insulin, one seems to lose control of the diabetes for a time. This was true even in the patient with the mild type of diabetes, as illustrated in Case No. 4. If the patient mentioned in Case No. 3 had been able to remain in the hospital for a longer period of time, protamine insulin might have of-

ferred him more. The milder diabetic patient, Case No. 4, was excellently controlled. However, much more experience will be necessary before regular insulin can be discarded in this group of patients. Diabetic patients are anxious for a preparation that will decrease the number of injections, and protamine insulin seems to have answered the problem for certain selected ones. Most individuals with diabetes experience real joy when they are able to reduce the number of units taken; and if protamine insulin will do this, it will help them. In the treatment of diabetic complications, such as infections, considerable difficulty is encountered in regulating the blood sugar content. My experience with these patients is that it is impossible to maintain a normal urine or blood sugar content when the infection is severe. The regular amount of insulin must be increased in order to avoid acidosis. Experience leads me to feel that protamine insulin should not be used in this class of patients, but rather the quickly acting, more powerful insulin, given at frequent intervals, regulating the amount necessary by urinary examinations. Likewise, in surgical diabetic patients, and those with other complications, such as pregnancy, regular insulin should be chosen until experience teaches us the proper use of protamine insulin in these conditions. It seems best to use regular insulin at first in patients who have not taken insulin previously, in order to establish the necessary dosage. A change to protamine insulin may then be made if indicated. Excessive blood sugar determinations, while necessary, are costly, disturbing to the patient, and not without danger when repeated vein puncture is done. Microscopic blood sugar determination is the method of choice. Per Hanssen<sup>3</sup> describes the enlarged liver in thirteen patients with severe diabetes, all but one of whom were children. Enlargement of the liver had previously been observed. The patient in Case No. 4 likewise had an enlarged liver which regressed greatly with the use of protamine insulin.

The introduction of any new preparation presents many new problems for solution. Will protamine insulin remain effective over a period of years? Will protamine insulin act quickly enough to prohibit coma when a rapidly developing infection occurs? Will tumefaction, infections, or protamine atrophies develop? Will the symptoms of hypoglycemia continue to develop slowly after it has been used for a period of years? Will anaphylaxis occur in some patients? Will patients become protamine sensitive or resistant? What will be the most suitable diet ratio? What will be the best division of food between the three meals? Will any untoward effects result from this new preparation which have as yet not been observed?

Will protamine insulin have any effect upon arteriosclerosis after prolonged use? Will excessive hepatic fat deposits be diminished in all cases? What will be its effect upon other complications? These and perhaps many other problems yet remain for solution.

#### SUMMARY

1. Four patients treated with protamine insulin are presented, three of the severe type, one of the milder type.
2. A careful selection of patients is necessary in order to give the greatest benefit from protamine insulin.
3. The time to give it in relation to meals and the proper diet ratio of carbohydrate, protein and fat requires further investigation.
4. Before protamine insulin is generally used, many more clinical experiences with its use in all types of diabetes should be made.
5. Problems encountered in the use of this new preparation for endocrine substitution therapy in diabetes mellitus, are discussed.
6. Protamine insulin seems to show advance in clinical therapy of selected patients with diabetes.

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#### ADVANCES IN INTERNAL MEDICINE IN 1935

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During the past year numerous contributions to the advancement of internal medicine have appeared in the literature. A brief review of this material is herewith presented.

In the diagnosis of gastric and esophageal conditions attention has been directed to the advantages of the Wolf-Schindler flexible gastroscope. Schindler<sup>1</sup> states that the use of this instrument has made it possible to visualize the interior of the stomach with safety and with relatively little discomfort to the patient. It affords an additional method for direct morphologic diagnosis of gastric disease. It reveals gastritis and other changes in the gastric mucous membrane not discernible by other means. Gastritis has frequently been observed with the gastroscope in patients who were thought to have a gastric neurosis. Esophageal disease is a contraindication for its use and it cannot be used to remove foreign bodies. For these



purposes open tube esophagoscopy is indicated, according to Jackson.<sup>2</sup>

Treatment of peptic ulcer by injections of histidine has been reported by Bulmer<sup>3</sup>, Eads<sup>4</sup>, Bauk<sup>5</sup> and others. All investigators obtained fairly satisfactory results. This type of treatment has the advantage of being ambulatory for the most part and requires little dietary restriction. Pain is relieved promptly where treatment is successful. Disadvantages are that at least twenty-four injections are required and that duodenal ulcers do not respond as well as gastric ulcers. This is unfortunate because of the greater frequency of duodenal ulcers. Ulcers high in the cardiac portion of the stomach which are technically inoperable may be healed by this method when standard treatment fails. The medical treatment of peptic ulcer has continued to gain favor in the past year and operation is reserved for obstruction, perforation and some cases of hemorrhage. The use of mucin is declining, probably because patients do not like to take it. Belladonna has been used for many years with apparently good results, but Bastedo<sup>6</sup>, reporting on laboratory and clinical observations, states that "in single maximum doses by hypodermic injection atropine may have a limited value in reducing secretion and spasm; but in the doses usually employed by mouth, or permissible for any continued treatment, atropine and belladonna are practically without effect on the secretory and motor functions of the stomach."

On the basis of experimental, clinical and epidemiologic data Rinehart<sup>7</sup> reaffirms his thesis that rheumatic fever may be the result of the combined influence of Vitamin C deficiency and infection.

The treatment of heart disease by thyroidectomy has continued, but its final value as a therapeutic measure is still open to question.

Carter and Traut<sup>8</sup> have reported good results in sixteen out of twenty cases of premature cardiac contractions with a combination of quinidin and strychnine. Their report should be welcomed because this arrhythmia is sometimes very resistant to the usual treatment.

"Acute cor pulmonale," a term coined by Paul White, has appeared in the literature.<sup>9</sup> This term applies to dilatation of the pulmonary artery and right heart chambers with or without failure which results from a sudden great obstruction to the pulmonary circulation as by a massive pulmonary embolism. Following a pulmonary embolism the appearance of the following signs suggests the diagnosis: increased prominence and pulsation in the region of the second and third intercostal spaces just to the left of the sternum, friction rub in the same region, gallop rhythm, dilatation and

increased pulsation of the jugular veins, cyanosis and finally alteration of the fourth lead of the electrocardiogram yielding an upright T wave with relatively normal P and QRS waves.

Further electrocardiographic studies on fourth or precordial leads are reported by Bohning and Katz.<sup>10</sup> They found this lead a distinct aid, especially when serial tracings were made, in evaluating the coronary circulation. Goldbloom<sup>11</sup> also has found the fourth lead of value in the treatment and management following cardiac infarction. Coronary occlusion while more and more familiar still presents atypical cases and S. Marx White<sup>12</sup> believes that only a study of the non-painful features will increase our diagnostic ability. Such features are fever, leukocytosis, lowering of blood pressure, pericarditis with its accompanying friction rub, and electrocardiographic changes incident to the cardiac infarction. One should also look for other signs, such as shock-like condition of the patient, dull distant heart tones, gallop rhythm, signs of congestive failure, dyspnea, Cheyne-Stokes respiration and changes in the rate and rhythm of the heart.

Future possibilities are suggested in the experimental work of Beck and Tichy<sup>13</sup> for the treatment of coronary occlusion by the development of collateral circulation through the production of adhesions between the myocardium and the pericardium.

The problem of hypertension still remains unsolved but additional information is being accumulated on the subject. Of interest is further work with the cold pressor test established in 1932 by Hines.<sup>14</sup> Fifteen family groups constituting 190 patients were studied. In six family groups there was no evidence or history of hypertensive cardiovascular disease; but in nine groups a definite hypertensive diathesis was found. The test was applied to all and the results indicate that the vasomotor reaction follows an inherited pattern. The excessive or hypertensive type of reaction occurs in the families in which there is a hypertensive diathesis.

The Pavaex treatment of peripheral vascular diseases has continued in the past year and now is used with good results in acute obstructive accidents and freezing of extremities, and with moderate success in arteriosclerotic obliterative disease. Results of Pavaex treatment in thrombo-angiitis obliterans have not been encouraging.

Dust storms in the past year have brought the logical query as to their effect on upper respiratory conditions. We may consider separately their immediate and future effects.<sup>15</sup> Immediate effects are increased morbidity and mortality in acute upper respiratory infections due to the irritating effect

of dust itself and not due to the carrying of pathogenic bacteria. The future effects are unknown but prolonged inhalation of such dust may cause pneumoconiosis.

Further evidence supporting the virus theory of etiology of influenza is presented in the report of Francis.<sup>16</sup>

Rockwell, Van Kirk and Powell<sup>17 and 18</sup> have used an oral vaccine in the treatment of colds. The bacterial cultures of pneumococci, Hemophilus influenza, streptococci, and Micrococcus catarrhalis were sterilized and absorbed on starch, dried and placed in capsules. The capsules were given daily for one week, then once or twice a week during the season. Approximately 1,000 persons were used in the experiment in which half were given the vaccine and the remainder served as controls. There was a 70 per cent decrease in the incidence of colds over the previous year in the group taking the capsules, and a 26.3 per cent decrease in incidence in the control group. Admitting the difficulty of proper control in this type of experiment, the results suggest that this new therapeutic approach may have some value.

The reports on artificial pneumothorax treatment of pneumonia have been generally favorable especially since more experience has permitted a better selection of patients. This treatment is contraindicated in children and in those with adhesions, or late in the course of the disease. Some question has been raised as to whether this treatment increases the incidence of empyema. Diathermy was used in eighteen of thirty-six consecutive cases of pneumonia as well as routine treatment in all by Wetherbee<sup>19</sup> et al., and the mortality rate was found to be 11.1 per cent in the diathermy group and 33 $\frac{1}{3}$  per cent in the control group. This form of therapy needs further trial to check the apparently good results so far reported.

In the field of hematology a distinct contribution has been made by Greenspon.<sup>20</sup> His experiments demonstrate that pepsin is antagonistic to the antipernicious anemia factor in the stomach (Castle's intrinsic factor) because of the following results: pepsinized ventriculin was ineffective in pernicious anemia; depepsinized gastric mucosa without beef was effective; depepsinized gastric mucosa incubated with dilute hydrochloric acid without the addition of beef was effective; depepsinized gastric mucosa incubated with dilute hydrochloric acid and pepsin was ineffective; and normal gastric juice peptically inactivated, was effective without the addition of beef or any other source of extrinsic factor. The author believes Castle's experiments can be fitted into this new conception on the basis that the beef or extrinsic

factor when incubated with normal gastric juice binds pepsin by adsorption and prevents it from inactivating the anti-anemic principle as otherwise occurs. He believes his results speak against the existence of an extrinsic factor.

In the diagnosis of diabetes considerable attention has centered on the development of a satisfactory tolerance test, and many oral and intravenous methods have been recommended. That of McKean<sup>21</sup> and his coworkers is termed a glucose clearance test and is advocated because a uniform rate of introduction of a small amount of glucose into the blood stream is assured, only two venepunctures are required, the test is completed in seventeen minutes, and repeated tests are in close agreement. Negative tests have great value but positive results are not so significant, because similar positive curves may be found in cardiac decompensation, hypertension, cholecystitis, peptic ulcer, carcinoma and chronic encephalitis.

Rabinowich<sup>22</sup> has reported in detail fifty cases of diabetes treated with very high carbohydrate-low fat diets, showing a definite reduction in the plasma cholesterol. "If excess cholesterol in the blood causes cardiovascular disease in the young diabetic, their outlook under this type of treatment has greatly improved." Flynn,<sup>23</sup> however, states that since the introduction of insulin, cardiovascular disease has increased in frequency while coma and sepsis have decreased. Higher carbohydrate diets have been used since the discovery of insulin but only in the past few years have diets containing 200 to 400 grams of carbohydrate been advised. Rabinowich<sup>24</sup> believes that high carbohydrate-low fat diets lead to more improvement in carbohydrate tolerance than all other diets heretofore used. Geyelin<sup>25</sup> is in accord with this latter view. Of interest is the report of Himsworth and Marshall,<sup>26</sup> that the diet of diabetic patients prior to the development of their disease tended to be lower than normal in carbohydrate content. They found the incidence of diabetes to be low in those districts where the people were living on high carbohydrate-low fat diets and vice versa.

In addition to the use of higher carbohydrate diets Clausen has had good results with insulin combined with epinephrine therapy. This seems advantageous when a patient requires numerous insulin injections or has an unstable blood sugar. Duncan,<sup>27</sup> et al., used duodenal extract prepared according to Laughton and Macallum's method in the treatment of diabetes and believes that it prevented hyperglycemia and glycosuria of any extent after the withdrawal of large doses of insulin, and that better glucose tolerance curves were obtained with the extract than without it. They suggest that the duodenal extract is to the pancreas as



iodine is to the thyroid gland. The most recent contribution to the therapy of diabetes is the work of Hagedorn<sup>28</sup> and his coworkers in Denmark. By injecting protamine insulinate they are able to avoid the peak effect of ordinary insulin and the effect on blood sugar is more sustained, thus fewer injections are needed and smaller fluctuations of the blood sugar values occur. Root,<sup>29</sup> et al., have confirmed the work of Hagedorn. This appears to be a major accomplishment in the therapy of diabetes.

Several reports have appeared describing acute renal failure and anuria in diabetic coma. Treatment with hypertonic salt solutions and hypertonic dextrose solutions intravenously has occasionally been successful.

Addison's disease has been the object of considerable study,<sup>30</sup> and experience has proved the efficacy of high salt intake in this disease in that its use reduces or eliminates the need for cortical hormone. In fact in questionable cases low salt diets have been used as a provocative test.<sup>31</sup> High potassium diets have an unfavorable effect on patients with Addison's disease, and conversely low potassium diets improve an otherwise poor response to the present methods of treatment.<sup>32</sup>

All reports on the use of fever therapy in arthritis are in agreement that this treatment is almost a specific for arthritis due to the gonococcus. The value of hyperpyrexia in other arthritides is still open to question but this treatment is recommended in selected cases. Colloidal sulphur is reported to be a valuable agent in the treatment of chronic infectious arthritis.<sup>33</sup> Fairly large doses (ten to thirty milligrams twice weekly), are as a rule well tolerated. The percentage and degree of clinical improvement was greater in those patients with a low cystine content of the finger nails, usually the older individuals. Younger persons had nearly normal cystine content of the finger nails.

Kolmer's vaccine for protection against poliomyelitis was safely used in 2,300 patients by Brodie and Park.<sup>34</sup> They claim that one dose produces antiviral substance in more than 75 per cent of patients and two doses produces it in practically all patients. Leake,<sup>35</sup> however, has reported twelve cases of poliomyelitis following vaccination. The value of Kolmer's vaccination remains therefore a debated question.

The results of the evaluation of the serodiagnostic tests for syphilis in United States by Cumming,<sup>36</sup> et al., indicate that one highly sensitive flocculation test might be used as a routine measure for excluding the likelihood of syphilis; then if this test is positive it can be repeated and compared with one or more highly specific flocculation or

complement fixation tests. In this way one may guard against falsely positive tests. If the original test is negative the committee felt all other tests would likely be negative.

Following the indiscriminate sale and use of dinitrophenol as a reducing agent, it was not surprising to find case reports of reactions from such unsupervised administrations. Soon after the drug appeared on the market, patients using it noticed the frequent appearance of edema associated with intractable urticaria. In the past year another complication has been noted, namely the appearance of rapidly developing cataracts subsequent to dinitrophenol administration.

This report has of necessity been a rather sketchy review of medicine in 1935, a field too broad for more detailed treatment.

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## HEMATURIA\*

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It shall not be the purpose of this discussion to enumerate all the possible causes of hematuria. Such a tabulation can be found in most textbooks. A more practical approach to this problem probably consists of a detailed study of a series of consecutive cases. Therefore it shall be my aim to analyze a group of 150 cases of gross hematuria, each of which presented an individual problem in diagnosis, in the hope that your attention may be focused on the seriousness of this symptom and the necessity for early diagnosis. Only by means of early diagnosis in the great majority of cases, is it possible to hope for any degree of success in overcoming the underlying cause of this easily recognized symptom.

Bransford Lewis once compared this situation to an individual reading in his library. Upon detecting the odor of smoke, he merely reaches over and shuts the door and reads merrily on, instead of investigating its source. When the room finally bursts into flame, it is too late to determine its source, or even, in fact, to escape total destruction. This example is well illustrated in the case of a young man, forty years of age, who passed bloody urine intermittently for three years until finally the discomfort from frequent and painful urination resulted in a cystoscopic examination. A large inoperable carcinoma of the bladder was found.

Second only in importance to early examination, is the opportunity to perform cystoscopies on these patients during the period of hematuria. This opportunity markedly reduces to a minimum the chances of overlooking the lesion which is responsible for blood loss.

An interesting group of cases is composed of those patients in whom hematuria develops after an injury. A most natural and logical assumption usually results in the diagnosis of traumatic hematuria and the necessity of verification by a complete examination is often overlooked. An engineer,

sixty-one years of age, while working on a boiler, slipped and fell ten feet to the floor, landing on the perineum. Hematuria developing three days later, resulted in cystoscopy, at which time a malignant papilloma, the size of a hazel-nut, was found in the bladder. A telephone lineman, after falling from a telephone pole, also developed hematuria. Cystoscopy and pyelogram revealed a tumor of the kidney.

An analysis of a series of 150 hematuria cases revealed the following percentage of lesions:

### TYPES OF LESIONS

Tumors	56	or 37.33%
Infections	43	or 28.66%
Foreign bodies	30	or 20.00%
Congenital	6	or 4.00%
Trauma	4	or 2.66%
Miscellaneous	11	or 7.33%

Sex		
Males	106 cases	70%
Females	44 cases	30%

Age		
1-10	2 cases	1.33%
11-20	6 cases	4.00%
21-30	22 cases	14.66%
31-40	25 cases	16.66%
41-50	23 cases	15.33%
51-60	34 cases	22.66%
61-70	29 cases	19.33%
71-80	9 cases	6.00%
Over 80	none.	

### TUMORS

Location	Cases	Per cent of hematurias	Average duration of hematuria
Kidney	6	4.00	47 days
Bladder carcinoma	21	14.00	395 days
Malignant papilloma of the bladder	3	2.00	37 days
Bladder papilloma	1	0.66	150 days
Benign prostatic hypertrophy	20	13.33	83 days
Carcinoma of the prostate	5	3.33	114 days

### INFECTIONS

Location	Cases	Per cent of hematurias	Average duration of hematuria
Chronic pyelitis	17	12.66	39
Pyonephrosis	2	1.33	31
Hydronephrosis	3	2.00	51
Tuberculous kidney	6	4.00	41
Chronic cystitis	1	0.66	66
Contracted bladder neck	3	2.00	29
Median bar (inflammatory)	1	0.66	70
Chronic trigonitis	1	0.66	50
Chronic prostatitis	7	4.66	31

### FOREIGN BODIES

Location	Cases	Per cent of hematurias	Average duration of hematuria
Renal calculus	2	1.33	46
Ureteral calculus	21	14.00	40
Vesical calculus	5	3.33	51
Multiple calculi	1	0.66	62
Foreign body	1	0.66	16

### CONGENITAL LESIONS

Location	Cases	Per cent of hematurias	Average duration of hematuria
Bifid ureter and pelvis	2	1.33	29
Abnormal rotation	1	0.66	34
Horseshoe kidney	1	0.66	3
Unilateral fused kidney	1	0.66	55
Polycystic kidney	1	0.66	48

### MISCELLANEOUS

Location	Cases	Per cent of hematurias	Average duration of hematuria
Contracted bladder neck (postoperative)	1	0.66	79
Bladder varix	1	0.66	62
Bladder diverticulum	1	0.66	41
Chronic nephritis	1	0.66	22
Carcinoma of the sigmoid	1	0.66	70
Normal findings	1	0.66	49
Questionable diagnosis	5	3.33	35

\*Presented before the Eighty-fourth Annual Session, Iowa State Medical Society, Davenport, May 8, 9, 10, 1935.



TRAUMA	
Renal injuries .....	4 cases
Average age .....	29 years
Average duration .....	8 days
Type:	
Auto accident .....	1 case
Fall .....	1 case
Blow on side .....	2 cases

## CONCLUSIONS

1. Hematuria in patients below twenty-one years of age is unusual, consisting of only five per cent.
2. Hematuria is generally a symptom of adult life, 32 per cent occurring between thirty and fifty years of age, and 42 per cent between fifty and seventy years of age.
3. Over one-third (37 per cent) of all hematuria cases are due to tumors of the urinary tract.
4. The most frequent tumor is bladder carcinoma, which occurs in 14 per cent of all cases of hematuria.
5. The average bladder carcinoma bleeds over one year (395 days) before cystoscopy. This is the longest duration of hematuria in the entire tumor group.
6. Over one-fourth of all hematuria cases are inflammatory in origin.
7. Infections produce hematuria earlier in life than do tumors:
  - a. Average age of infections, thirty-nine years.
  - b. Average age of tumors, fifty-seven years.
8. Of all urinary calculi, those in the ureter are by far the most likely to produce hematuria (twenty-one out of twenty-nine).

### THE CONCENTRATION TEST AS A PRACTICAL MEANS OF DETERMINING KIDNEY INSUFFICIENCY

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There is a general tendency to examine the urine for albumin, sugar, pus and red blood cells; if none of these is found, the patient is assured that his kidneys are all right. If nothing in the history or general examination suggests a possible kidney disorder, such assurance can be given with reasonable safety. Frequently further investigation, to determine the kidney status more precisely, is advisable. In chronic glomerulonephritis, the urine is often negative at intervals. Some patients with hypertension have a negative urine in spite of considerable kidney damage.

If anything more than a trace of albumin is found, we are probably over-anxious in making the diagnosis of diffuse nephritis. Not infrequently a patient out-lives the six months or year the physician has given him because of his albuminuria. If the blood pressure is normal the con-

dition might be an orthostatic or essential albuminuria.

The best and most simple test to determine the existence or degree of kidney destruction is the concentration test. A relatively fixed specific gravity indicates the loss of flexibility of the kidney and indirectly is a fairly accurate estimate of the relative proportion of functioning glomeruli. If the specific gravity rises above 1.025 on dehydration for eighteen to twenty-four hours the kidney function is considered within normal limits. If it does not rise above 1.016 or 1.018, impairment is marked, and suggests renal insufficiency. It is true, that there must be considerable kidney damage before flexibility is greatly impaired; but if the loss of function is no greater than that, it can generally be disregarded from a practical standpoint.

Many other tests of kidney function that are in general use are valuable, but none of them is as easily carried out, and few if any are as accurate or comprehensive. The phenolsuphonphthalein test is a fairly reliable one, but often varies, even in the same individual on repetition. The blood urea, and blood creatinin tests are practical to determine how much of the nitrogenous waste products of protein metabolism are being retained, but these remain normal until marked kidney destruction has occurred. They will not be elevated in an individual who can concentrate up to 1.025 or even up to 1.020, unless he is dehydrated or has an upper abdominal obstruction. McLeans' urea concentration test, which consists of administering fifteen grams of urea in 100 cubic centimeters of water by mouth, and observing how much urea is excreted at the end of one and two hours, is perhaps as valuable as the usual concentration test, but it is not as easily performed. The blood urea clearance test, which consists of comparisons of the urea excretion with that of the blood urea level, is an accurate guide in determining the kidney function. It is only slightly, if at all, superior to the simple concentration test. To perform it, the urea content of the blood and urine as well as the number of cubic centimeters of urine excreted per minute must be determined. The formulas are likely to be confusing for an individual who is not performing this test daily. Wakefield, Powers and Keith<sup>1</sup> found the inorganic sulphates in the blood serum increased before the kidney had lost its ability to concentrate up to 1.025 or more; but the reverse had also occurred. The superiority of this more difficult and rarely used analysis might be questioned.

To apply the simple concentration test the patient is kept on a dry diet for a day, and the specific gravity of successive specimens of urine is

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taken. If large quantities of solids are present, the specimen should be centrifuged or allowed to settle and the supernatant fluid used for the determination. Normally the specific gravity will rise rapidly, and the next morning the specimen should show a specific gravity of 1.030 or more. For routine purposes, the period of dehydration can be shortened. The patient can be instructed to avoid extra fluids at dinner and to take no fluids that evening or on the following morning. The first morning specimen is discarded, the second specimen is saved, and if its specific gravity is 1.025 or over, the kidney function can be considered normal. Likewise if the specific gravity of a specimen of urine on routine urinalysis is 1.025 or over, and it contains neither albumin nor sugar, further tests of kidney function are unnecessary. Albumin or sugar will elevate the specific gravity, and if either of these is present in more than traces, the direct results will not be accurate. Sugar is a rare complicating factor, and can almost always be eliminated by diet or insulin. The test can, however, be applied in the presence of sugar, by determining the percentages of sugar, how much it would elevate the specific gravity, and subtracting this from the reading, thereby obtaining the corrected specific gravity. The presence of albumin, which exaggerates the indication for the test, makes it more difficult.

Lashmet and Newburgh<sup>2</sup> have devised a simple test for measuring protein content so that its proportion can be deducted from the specific gravity. It was found that one per cent of protein elevated the specific gravity 0.003. (It is evident that albuminuria below 0.3 per cent need not be considered in correcting the observed specific gravity.) The percentage of albumin or protein is determined by the degree of cloudiness which occurs on the addition of thiosalicylic acid. They have prepared a stock standard solution for comparison (consists of 50 cubic centimeters of 0.1 sodium hydroxide and eight grams of copper sulphate with water up to 500 cubic centimeters). Two cubic centimeters of this, freshly diluted with 23 cubic centimeters of water, has a similar and permanent turbidity as one per cent albumin, when thiosalicylic acid is used as described by Folin.<sup>3</sup> One cubic centimeter of urine is placed in a test tube and 24 cubic centimeters of two per cent thiosalicylic acid is added. If the turbidity is the same as the standard, the urine contains 0.1 per cent of protein. If the urine salicylic acid mixture must be diluted with nine times the amount, a ratio of one to ten, to match the turbidity of the standard, it contains 1.0 per cent. With such a result, .003 would be subtracted from the observed specific gravity.

This method of correction for albumin might

seem complex. If a large quantity of albumin is present the urea clearance test might be preferred. If marked renal insufficiency is suspected, or if the individual is seriously ill from any cause, dehydration is inadvisable.

McGrath<sup>4</sup> has applied the value of determining the specific gravity in cystoscopic work, weighing the urine collected from each ureteral catheter. He believes the test is helpful in cases of tuberculosis. Appreciation of the test increases with its more frequent application. Beginning renal insufficiency will occasionally be found where it is hardly suspected.

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### THE SURGICAL TREATMENT OF THE STONELESS GALLBLADDER\*

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It has been estimated that ten per cent of all persons over thirty-five years of age in the United States have gallbladder disease. This condition accounts for the greatest proportion of all digestive disturbances in the adult. During the past decade, research workers have made outstanding advances of knowledge concerning the functional pathology and physiology of the biliary tract. The practical application of this knowledge cannot help but be to the advantage of these numerous individuals. The extensive research work of Ivy and Bergh<sup>1</sup> has proved that the functional change in the gallbladder is the result of a disturbance in the entire biliary tract physiology. Through their work, it has been found that cholestrin and bile pigments are held in solution by fatty acids and bile salts, and that in cases of disturbed function of the liver there is a decrease in the concentration of bile salts and fatty acids which is conducive to the precipitation of cholestrin and bile pigment and the subsequent formation of stones.

Any theory which attempts to explain the genesis of gallbladder disease must account for the fact that the disease occurs most frequently in certain races, and that it occurs more commonly in women than in men, and further that its incidence is highest in the women who have borne children. Gallbladder disease is not found so frequently in people who have a negative philosophy of life. It would seem therefore, that there are certain factors active in highly developed, high-strung,

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emotionally active persons and in childbearing women that can change the concentration of bile salts and fatty acids secreted by the liver cells. Crile<sup>2</sup> explains this situation as resulting from a hyperactivity of the adrenal sympathetic system. Pregnancy, infection, emotion and all hyperkinetic conditions produce an immediate change in the cells of the liver; change in the cells of the liver in turn presupposes a change in the concentration of bile salts and fatty acids, which is a change favorable to a functional change in the gallbladder and the ultimate formation of stones. The old theory of metastatic infection or infection by way of the lymphatic system or blood stream, is more or less discredited except as a secondary factor in the disease. It is true that infection of the gallbladder does occur but almost always in the presence of stones or by direct continuation of infection from the intestinal tract by way of the bile ducts.

The stone-less gallbladder with which we are particularly interested in this discussion is that manifestation of disturbed physiology prior to the formation of stones. The element of time between the beginning of disturbed biliary tract physiology and the formation of stones is so variable that it is impossible to estimate. During this period of time, the patient may suffer all the symptoms of chronic gallbladder disease except those of biliary colic.

#### SYMPTOMS

The symptomatology of the stone-less gallbladder is that of a chronic digestive disturbance, which is indefinite, is not relieved by alkalies, and is characterized by an excess of gas. These patients learn that certain foods give them more discomfort than others, there is an indefinite soreness under the right costal margin, and there may be extensive weight loss due to the fear of eating. There are seldom, if ever, attacks of true gallbladder colic because this condition can occur only when there is an obstruction of the cystic duct.

#### PATHOLOGY

The pathology in this type of gallbladder is usually a moderate edema of the mucosa, infiltration of lymphocytes and leukocytes into the submucosa and a generalized thickening of the gallbladder wall. There may be patches of cholesterol on the mucosa, and the common description of this condition is "the strawberry gallbladder." There is nothing concrete to indicate the presence of bacteria or an infective process. Externally the organ is often entirely normal. All evidence again leads to the conclusion that this change is one of disturbed function. Unquestionably in many cases, infection becomes superimposed giving the picture

of a typically infected gallbladder. One should not, however, be misled as to the genesis of the condition. These pathologic conditions are not limited to the gallbladder alone but are present to a more or less degree in the entire biliary duct system. Pathologically, this condition probably should not be called chronic cholecystitis in that it is not an infective process. Chronic cholecystic disease, although rather noncommittal, would describe the picture much more adequately.

#### TREATMENT

From the standpoint of treatment, one must take into consideration the fact that the "gallbladder is a factor of safety in physiologic economy" according to Ivy<sup>3</sup>. If this is true, then one should not remove a gallbladder with the same impunity that one would remove a chronically inflamed appendix. The work of Graham<sup>4</sup>, in which he discovered the method of visualizing the gallbladder by x-ray and by which we have been able more or less to determine the functional activity of the gallbladder, has been a great help in outlining a plan for treatment. A patient with definite symptoms and all the other evidence of chronic cholecystic disease, whose gallbladder still has the ability to fill, concentrate and empty, will in all probability not be relieved of his symptoms by cholecystectomy, and can be classed as a surgical failure for the reason that in doing the cholecystectomy, there has been removed only a small portion of the biliary tract pathology. If perchance, he is relieved of his symptoms it is due to the remote effects of the cholecystectomy on the biliary tract rather than to the removal of a localized diseased process. The chain of disordered events producing both the symptoms and the changes in the gallbladder is broken by the loss of cholecystic activity and the symptoms cease. This type of patient should receive medical treatment until there are definite functional changes in the gallbladder or until the symptoms are so severe that he is incapacitated. Only after he has been given a true picture of the possibilities of at least some of his symptoms remaining, should surgery be contemplated. In the cases where there is definitely a disturbed gallbladder function as shown by cholecystography or in the cases where there has been a definite gallbladder colic, we can be much more assuring to the patient as to a favorable outcome. In our direct surgical attack on the gallbladder, the evidence is strongly presumptive that the gallbladder is not benefited by drainage. The scarring incident to the drainage tube will probably produce sufficient damage to interfere with normal emptying. Fleming<sup>5</sup> made a study of thirty-six cases following cholecystomy and found only one in which there was a nor-

mal cholecystographic shadow. It is now generally recognized that cholecystectomy is definitely indicated in those cases of chronic cholecystic disease in which the gallbladder is so permanently injured that it cannot be visualized normally by cholecystography. From the physiologic point of view a functional cholecystectomy has already been performed and the remaining part of the biliary tract has adapted itself to the absence of a gallbladder.

The technic of performing a cholecystectomy is not standardized. As to whether the gallbladder should be dissected out from below, beginning with the cystic duct, or on the other hand beginning at the fundus and dissecting downward, makes very little difference. However, there are certain fundamentals in dealing with the gallbladder which we should all remember. The gallbladder should never be opened until it is outside the abdominal cavity. The liver tissue should not be injured; the cystic duct should be isolated and visualized down to its junction with the common duct. This is our only guarantee against injury to the common duct. The cystic artery should be ligated with certainty either separately or with the cystic duct. The gallbladder bed should be closed smoothly with a running suture with the stump of the cystic duct buried beneath the suture line. The closure of the gallbladder bed smoothly is the best assurance against adhesions to the pylorus or colon.

As to drainage, probably all clean cholecystectomy wounds could theoretically be closed without it. Yet occasionally there will be an unusual case in which bile leaks in some unexplained way and bile peritonitis threatens or even causes the death of the patient. This occasional occurrence supplies the argument in favor of drainage in every case. A Penrose drain down to the stump of the cystic duct coming out either through the wound or through a separate stab wound and allowed to remain forty-eight hours only if there is no bile drainage, will obviate the hazard of an unrecognized bile peritonitis without risk to the patient.

#### RESULTS

It is difficult in a series of cases in which cholecystectomy has been done, to establish the fact that the cholecystectomy alone has either given relief or failed to give relief to the patients, for the reason that at the time of doing the cholecystectomy the appendix is usually removed, and it is possible that there could have been adhesions between the gallbladder and the pylorus or colon causing functional digestive disturbances which were misinterpreted as coming from the gallbladder. In the study of 98 cases in which cholecystectomy was done for chronic cholecystic disease without stones,

I have attempted to establish some correlation between the cholecystographic findings and the results following operation. In a close follow-up, I have been able to establish the fact in this series that 74 per cent of the patients were either entirely well or improved; 26 per cent had either no relief from their symptoms or were even made worse by the cholecystectomy. In the study I have subdivided the cases into three divisions according to the cholecystographic findings; first, those in which the gallbladder failed to fill after two or more trials by giving the dye by the oral method; second, those in which there was a marked delay in filling and emptying; and third, those in which there was a definite delayed emptying time only. I have ruled out the element of concentration in that there are radiologic factors which change the density of the shadow and I have felt that this element of concentration was too uncertain a factor to furnish any valuable information as to the degree of disturbed gallbladder function. These cases are presented in the following table:

Cholecystographic findings	Number of Cases	Well	Improved	Not Improved	Percentage well or Improved
Failure to fill	60	40	14	6	90%
Delayed filling and emptying	30	9	6	15	50%
Delayed emptying only	8	1	2	5	37%
Totals	98	50	22	26	74%

These figures are none too encouraging and would seem to indicate that a definite, clear cut disturbed function of the gallbladder should be present before surgical treatment is contemplated or until a well supervised medical treatment has failed.

#### CONCLUSIONS

1. That chronic cholecystitis without stones is from the best evidence at hand a pathologic physiology and that its manifestation in the gallbladder is only one small part of the disease.

2. That cholecystectomy is the surgical procedure of choice and will best answer the purpose for relief of symptoms when the rest of the biliary tract has adapted itself to the functional loss of the gallbladder.

3. That the patient suffering from biliary tract disease should best be treated entirely as a medical case until such time as the disturbed function of the gallbladder can be definitely determined by cholecystography.

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## COLLOID CARCINOMA OF THE BLADDER\*

With Report of a Case

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Secondary invasion of the bladder by colloid carcinoma of the bowel, ovaries, or other organs is not uncommon. Hermann<sup>1</sup> reports a case of metastatic colloid bladder carcinoma arising from a carcinoma of the stomach, and also states that in twelve cases of Krukenberg tumor, six of them had metastasized to the bladder.

Of the epithelial tumors arising primarily in the bladder, adenocarcinomata make up a very small group, and the mucin-containing adenocarcinomata, or so-called colloid carcinomata, form a still smaller group, so small in fact that very little appears in the literature about them. In 1927 Young<sup>2</sup> reported two cases and stated that only eighteen cases had been reported previously. The report of the Committee on Carcinoma Registry of the American Urological Association<sup>3</sup> lists 902 malignant tumors of the bladder, but only seventeen of these were adenocarcinoma, colloid carcinoma or adenoma malignum. Gardner<sup>4</sup> listed 369 bladder tumors with four adenocarcinomata, and Smith and Mintz<sup>5</sup> reported 150 cases of bladder carcinoma encountered at the Massachusetts General Hospital in ten years, only one of which was an adenocarcinoma. Peacock and Corbett<sup>6</sup> state that colloid carcinoma forms one-half of one per cent of all bladder tumors. In our own series of 365 cases at the University Hospital we have seen only one colloid carcinoma which was primary in the bladder.

Colloid carcinoma may arise at any point in the bladder but apparently is more often encountered in the dome or anterior wall, although cases have been reported on the base of the bladder. Scholl<sup>7</sup> cites thirty-one cases of tumor in the dome of the bladder seen at The Mayo Clinic from 1910 to 1924; five of these were glandular carcinoma, and four of these contained mucin. Quimby<sup>8</sup> reported one found on the base of the bladder. The age incidence varies from twenty-nine to ninety years. Most of the tumors appear as flat, thick growths involving and infiltrating the bladder wall. Occa-

sionally they may be pedunculated and appear to grow from the bladder mucosa. Microscopically they have a close resemblance to tumors arising in the gastro-intestinal tract, and it is usually suspected at first that the tumor is actually secondary to a gastro-intestinal tract tumor. It is only after gastro-intestinal tract malignancy has been ruled out that the diagnosis of primary colloid carcinoma of the bladder is made.

The etiology of these tumors is obscure. It has been held in the past that the bladder mucosa does not contain mucous glands and that if these tumors do arise from mucous glands such glands must be misplaced glands of the urethra or prostate. Ewing<sup>9</sup> states, however, that occasionally mucous glands are found in the bladder and that colloid carcinoma may develop from these. Stoerck<sup>10</sup> and Mandelbaum<sup>11</sup> both point out that it is perfectly possible for a mucous carcinoma to develop from cells of the bladder mucosa without arising from aberrant cell rests. Because the bladder originates from tissue which also develops into bowel, it has been suggested that there are remnants of bowel-forming tissue left in the bladder wall which later give rise to colloid tumors. These tumors are also occasionally found in exstrophy of the bladder, usually at the upper portion of the exstrophied bladder, suggesting remnants of the urachus as a point of origin. Begg<sup>12</sup> has reported a series of forty-four tumors arising from the urachus, nineteen of which were colloid carcinomata, and nine of which involved the intramucosal or intramural portions of the apex of the bladder. Irritation as a result of chronic cystitis cystica and the degeneration of the glands of von Brunn have been cited as causes for the development of these tumors. Chute<sup>13</sup> suggests that they arise from one of three possibilities, strayed urethral glands, aberrant prostatic glands, and faulty embryologic development.

The symptoms may exist over a long period of time and at first may be very indefinite. A sense of uneasiness in the bladder region, or occasional frequency and urgency of urination may be the first complaint. Usually the first symptom of any significance of which the patient complains is hematuria, which may be present for a considerable length of time without being marked. The appearance of large amounts of mucus in the urine may be significant. As in other bladder tumors, infection may set in early, and the irritation, frequency, urgency, pyuria and pain as a result of infection may overshadow and obscure the actual condition, and the patient may be treated for cystitis or prostatitis for some time before the actual condition is apparent. Occasionally, when the tumor involves the dome of the bladder, it

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may be palpable suprapubically, or a sense of resistance may be met on palpation. Cystoscopic examination may reveal nothing, for the tumor growing in the bladder wall may not be evident to the eye, or there may be merely some bulging at the site of the tumor. It is not until the tumor has ulcerated through the bladder mucosa that pathology is recognized and even then it is very seldom diagnosed as being colloid in nature. At times mucus may be seen coming from the bulging or ulcerated area. Calcareous material may form on the surface of the ulcerated area and from time to time the patient may pass pieces of calcareous material, or sloughing may occur and pieces of necrotic tissue may be passed in the urine.

Since this tumor is one which usually lies within and involves primarily the bladder wall, and may be much more extensive than one would judge from its cystoscopic appearance, transurethral methods of treatment are impractical. Tumors found in the gastro-intestinal tract, comparable to

results may be gratifying, the ultimate prognosis is very poor.

Primary colloid carcinoma of the bladder is a very rare tumor, obscure in etiology, slow in development, may be masked by symptoms of secondary infection, metastasizes late, but is very resistant to treatment.

#### CASE REPORT

L. L., a white male, thirty-eight years of age, entered the Urologic Clinic of the University of Iowa Hospital on September 19, 1934, complaining of blood in the urine for the previous eighteen months. About eighteen months before admission he had developed frequency of urination of about every half-hour during the day and six to eight times at night. He occasionally passed small clots of blood. He continued in this way until about one month previous to admission when the symptoms become markedly aggravated; the frequency and nocturia remained about the same, but the hematuria became much more pronounced so that



The tumor after removal.

Fig. 1.  
Air cystogram showing filling defect  
produced by tumor.

Cross section showing large spaces  
filled with mucus.

this tumor in structure, are usually resistant to x-ray therapy, so that it is probable that this form of treatment offers little hope of cure. Quimby treated such a tumor involving the base of the bladder with implantation of radium seeds and obtained a good but temporary result. Where the tumor is so situated as to be amenable to operative attack, excision of the tumor-containing portion of the bladder wall, together with a fairly wide area of normal bladder wall and even the overlying peritoneum, if involved, probably offers the best hope of eradication, and is the method which has been used most frequently. It is possible that a combination of radium implantation and x-ray therapy might be of benefit in those tumors so situated as to be inaccessible to operative attack. Even with the most radical methods, however, the lesion tends to recur and may involve the surrounding structures or extend widely in the abdominal cavity, so that while immediate

he passed at times from half an ounce to four ounces of blood, usually terminally, but occasionally mixed with the urine. There were also numerous small clots. While there was no straining or difficulty on voiding, he had marked burning and smarting, considerable urgency, and considerable terminal tenesmas. One time the patient fell from a load of hay and at once passed a considerable quantity of blood, and another time after lifting a heavy object he again had marked hematuria. On two or three occasions he had passed a small amount of finely granular calcareous material in the urine. There had been no loss of weight or strength. He had had the usual diseases of childhood. Venereal diseases were denied. He had three children living and well and there had been no miscarriages. The patient was a furnace tender in a brass foundry.

Physical examination showed a short robust male who was apparently in very good health and



the only positive findings were a few carious teeth and a slightly enlarged, very tender prostate, with the prostatic secretion showing many pus cells; hemoglobin, 90 per cent; red cells, 4,900,000; and leukocytes, 10,400. The urine was alkaline, had a specific gravity of 1.014, was negative for albumin and sugar, but the Meyers test was positive for blood. The centrifuged sediment showed four to eight red cells and four to eight pus cells to each high power field. Intravenous pyelograms showed nothing grossly pathologic in the kidneys

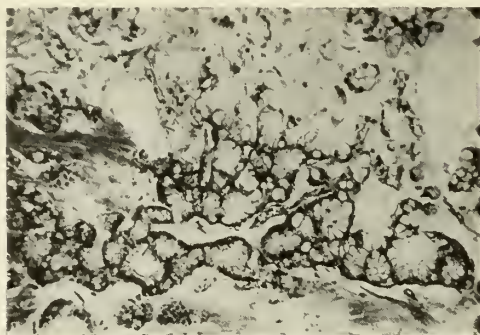


Fig. 2. Microscopic structure—low power.

or uterers. There was some lumbosacral arthritis.

A diagnosis of prostatitis was made and the patient was placed on hot sitz baths and applications of heat to the prostate through an Eissner apparatus. His symptoms of bladder irritability improved markedly. On October 1, 1934, because we felt that the diagnosis of prostatitis would not account for the quantities of blood in the urine, he was cystoscoped and a tumor was found in the apex of the bladder. This tumor appeared as an ulcerated lesion, with a rolled heaped-up border, about the size of a twenty-five cent piece. It seemed to be infiltrating the bladder wall. Its surface was irregular and at points was covered with gray calcareous material. Catheterization of the ureters and pyelograms revealed no pathology in the kidneys. A cystogram taken after cystoscopy showed a characteristic filling defect in the bladder apex. Because of the location of the tumor in the bladder apex at a point where it could be easily excised, and because it seemed to be invading the bladder wall, it was felt that suprapubic excision was the treatment of choice. On October 8, 1934, suprapubic cystostomy was done. On coming down to the bladder, a large mass was at once apparent. It involved the dome of the bladder, was hard, nodular, and about five or six centimeters in diameter. The mass lay more to the right of the midline. It seemed to be involving the

whole thickness of the bladder wall but the peritoneum stripped off the bladder easily. The peritoneum was accidentally opened and through this opening the bowel and the remainder of the abdomen was explored but no tumor was found inside the peritoneum. The peritoneum was closed, the bladder opened, and the tumor excised, a rim of normal bladder wall being taken with it. The bladder was closed about a Pezzer catheter.

The pathologist's report was as follows: "Specimen consists of a round, cup-shaped tumor, 5.5 centimeters in diameter, 3.5 centimeters thick, with a crater one centimeter deep. The edge is rolled and very firm. On cut section the center of the crater is yellow, granular material, and extends 0.8 of a centimeter into the cartilaginous mass of the tumor proper. There is one place just below the crater where it appears to be penetrating the serosa, forming a tumor one and one-half by one centimeter outside the serosa. Sections of the tumor mass show many bands of collagen fibers between which are masses of very light staining amorphous material which is mucus. Scattered through this, with large collections near the surface, there are masses of quite large neoplastic cells, many of which contain a large vacuole which pushes the nucleus off to one side, forming a typical signet-ring cell. These cells are penetrating deep into the muscular coat and have extended through the peritoneal covering of the bladder, masses of them being located in the fat outside the bladder. There is a moderate number of mitotic figures and many cells contain

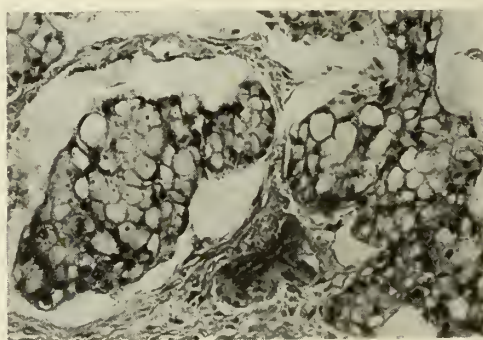


Fig. 3. Microscopic structure—high power. Note signet-ring cells.

nucleoli. There are a few well-formed acini. Part of the transitional epithelium of the bladder is present in one slide. This type of neoplasm usually arises from the gastro-intestinal tract. Diagnosis: Colloid adenocarcinoma in the bladder, primary undetermined."

We felt that the tumor was primary in the

bladder as our exploration of the abdomen had failed to reveal any malignancy or any evidence of a tumor extending into the bladder. Because of the report of tumor cells having been found in the fat outside the bladder, the patient was given x-ray therapy, starting on the tenth postoperative day, receiving in all 6,400 roentgens, 3,200 anteroposteriorly and 3,200 laterally, or a depth dose of 4,121 roentgens. The suprapubic sinus was very slow in closing, but about the end of January, 1935, it had closed and the patient had no further urinary leakage. He returned March 15, 1935, at which time the suprapubic wound was well healed, but there was marked induration and thickening of the skin and suprapubic tissues secondary to the x-ray therapy. No masses were felt deep in the wound, but on the surface, about the middle of the incision was a small round, movable nodule which did not seem characteristic for recurrence of malignancy. Cystoscopy at this time showed the bladder well healed, of good capacity, and there was no evidence of recurrence of the tumor. The patient was last seen on April 15, 1935, at which time he was in good health, had gained twenty pounds in weight, felt well enough to return to work, and had had no recurrence of his bladder symptoms. The wound appeared about the same as it had on March 15, and if anything, the small mass was smaller and softer than it had been in March. This tumor corresponds very closely to those cited by Begg as arising from the urachus and it is quite probable that such is the case.

Author's Note: Since this paper was written the patient was seen on April 23, 1936. His general health is good, and there is no evidence of recurrence. He has had no further trouble.

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## SIGNIFICANCE OF JAUNDICE IN BILIARY TRACT DISEASE\*

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Jaundice is one of the spectacular symptoms in clinical medicine and is concrete evidence of organic disease. Jaundice is usually the result of disease originating in the biliary system, but it may be a prominent symptom in certain conditions which are independent of or only remotely related to the biliary system.

From a surgical point of view, the biliary system may be considered as consisting of four component parts: the liver, the major ducts, the gallbladder and—because it is so intimately related, physiologically and pathologically—the pancreas. Pathologic change originating in any portion of this system is likely to affect all other portions in varying degree, and especially if the disease process has been recurrent or progressive.

The gallbladder is most commonly the origin of biliary tract disease. Uncomplicated gallbladder disease, whether due to gall stones, inflammation or neoplasm, does not produce jaundice. When jaundice develops in gallbladder disease it is evidence that the pathologic condition has extended beyond the confines of the gallbladder.

#### JAUNDICE IN DISEASE OF THE GALLBLADDER

In acute cholecystitis the inflammatory process involving the wall of the gallbladder, and especially the mucosa, may extend along the cystic duct to involve the common and hepatic ducts. This extension is commonly gradual in development and the ensuing jaundice is not manifest until several to many days have elapsed after the onset of the acute gallbladder attack. The degree of jaundice is variable, but is usually not extreme unless the inflammation extends up the hepatic ducts to the smaller radicals in the liver. In an attack of gall stone colic, with or without associated acute cholecystitis, one or several stones may be forced through the dilating cystic duct into the common duct to produce obstruction of the latter, and jaundice. An interesting condition not uncommonly seen is the wedging of a large stone into the cystic duct until it protrudes in part through the lumen and impinges against the opposite wall of the common duct, and jaundice then develops. The gallbladder presents either a hydrops or an empyema.

Infection may extend outside the gallbladder to produce a pericholecystic abscess so situated as to be responsible for the development of jaundice. An abscess may develop secondary to perforation of the cystic duct or gallbladder wall, by stone and lie in contact with the common duct to produce ex-

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trinsic inflammation of it. Occasionally a suppurative adenitis develops in the "sentinal" node and this leads to the development of an abscess in the mesocysticum and inflammation of the common hepatic or right hepatic ducts. In many individuals the gallbladder presents a pouch of considerable size on its mesial wall near the cystic duct. This anatomically normal pouch, the cecum, often lies in immediate contact with the common duct. In acute cholecystitis in such an individual the common duct may be both inflamed and compressed by the adjacent, swollen, tense gallbladder cecum.

Carcinoma of the gallbladder is a lesion much more common than is ordinarily recognized. Interestingly enough, gall stones are present in such a gallbladder in practically all cases. Jaundice frequently develops as a symptom sooner or later due to extension beyond the gallbladder itself. Such extension may be through the cystic duct to the common duct with obstruction of the latter intrinsically. Metastases may take place into the lymph nodes lying along the course of the common duct and producing pressure upon the latter from without. Extension of the cancer may take place directly through the gallbladder into the liver substance and produce obstruction of the ducts within the liver. It is not uncommon, however, for a patient to die of carcinoma of the gallbladder even if jaundice has never developed as a symptom.

#### JAUNDICE IN COMMON DUCT DISEASE

Stones within the common duct usually have migrated from the gallbladder. They may pass rapidly through the duct without producing obstruction for any period of time. With transitory obstruction there may develop a very slight degree of jaundice.

Stones remaining within the common duct have an extremely variable clinical significance. A stone may become impacted within the duct, usually in the ampulla of Vater, and within a few hours the evidence of obstruction may manifest itself in the passage of dark-colored urine; staining of the sclera and skin follow within twelve to twenty-four hours. Dilatation of the common duct is likely to take place if its wall is not thickened by associated inflammation and in some instances it will be extreme.

One or several stones may be present within the duct for an indefinite period of time and produce no symptoms of pain or jaundice. In other instances, common duct stones may be responsible for attacks of biliary colic but no jaundice, and are associated frequently, but not necessarily, with high fever and chills. Jaundice may develop from a common duct stone which has become impacted

within the duct but has not produced pain or any evidence of infection. This condition closely simulates obstruction by neoplasm.

In every operation for gallbladder disease, the surgeon must bear in mind the possibility that stones are present in the common duct even though the patient has never been jaundiced, and a very careful examination should be made to rule out this possibility. By standing on the patient's left side the index finger can be introduced behind the gallbladder into the foramen of Winslow and with the thumb above, careful palpation can be carried out between the thumb and finger.

Inflammation of the common duct is usually secondary to disease of the gallbladder, but it may originate within the duct itself. In some cases, undoubtedly, the inflammation develops in the region of the papilla of Vater due to regurgitation of duodenal content. In such cases, the inflammatory process may be very well localized to involve only the papilla and ampullar portion of the duct. At operation in such cases the absence of palpable stones, the apparently uninflamed gallbladder, and the normal appearance of the visible common duct, together with a palpable firm swelling in the terminal portion of the duct, may lead to the erroneous conclusion of malignancy involving the papilla or ampulla.

Inflammation of the common duct may be from extrinsic causes, such as abscess, inflamed cecum of the gallbladder, or acute lymphadenitis. Often-times such inflammatory change is limited to the area of the extraductal process.

Inflammation of the common duct may be associated with dilatation of it if there has been a mechanical occlusion of the lumen at some point. It is not uncommon, however, to find the lumen markedly narrowed and the wall throughout extremely thick and inelastic. In cases of this sort, jaundice is likely to be marked and persistent, but with some variation in its intensity.

Inflammation of the common duct, whether intrinsic or extrinsic, may be followed by scarring within the wall of such degree and character as will lead to the development of a stricture. This is much more likely to develop, however, as a sequel to an operative attack upon a common duct which is diseased. A stricture is usually not complete and tends to produce attacks of pain and jaundice with or without fever and chills, and grossly simulates a common duct stone.

Occasional cases are seen of congenital narrowing of the common duct. Such narrowing is likely to take place where the duct traverses the duodenal wall. This leads to an enormous dilatation of the duct with chronic symptoms of dyspepsia and mild jaundice over a period of years. Acute attacks

may develop and stones may form within this chronically pathologic duct.

Cancer of the common duct develops in most instances in the papilla of Vater or in the ampulla. Jaundice is likely to be the earliest symptom, coming on insidiously without pain and increasing in intensity without variation until it is extremely marked. The gallbladder and common duct are usually enormously distended and the former may readily be palpated through the abdominal wall in most cases. Oftentimes it is not at all tender.

#### JAUNDICE IN INVOLVEMENT OF THE LIVER

Cholangitis in some degree is usually associated with intrinsic inflammation of the major ducts secondary to gallbladder disease. Where the inflammation is severe or protracted and has not been preceded by dilatation, varying degrees of narrowing and thickening of the radicles may take place. This may lead to permanent changes. Biliary cirrhosis of the liver may develop with persistent jaundice.

Cholangiectasis develops as the result of persistent or recurring obstruction in the common duct, usually from stone. The dilatation of the smaller radicles within the liver may be very marked and it may become permanent. This is oftentimes responsible for marked liver damage. In addition to the cholangiectasis, thickening of the duct wall may follow the introduction of infection into the pathologic picture. Calculi may form within such diseased biliary radicles and remain lodged at the site of formation or work their way distally into the major ducts.

At operation upon patients for conditions involving the major ducts, the liver may be found to be increased in size, very firm, leathery, inelastic and bile-stained. In acute cholangitis the liver is angry red and stippling is noted in its capsule upon manipulation. In extreme cases of chronic type with biliary cirrhosis the liver is smaller than normal and this may be extreme. Its surface is frequently uneven, sometimes nodular, and of marked hardness.

The injury of the liver which takes place incident to the changes in the smaller biliary radicles may be permanent, and relief of infection or obstruction in the common bile duct may fail to cure the symptom of jaundice. Over a period of time regeneration of liver may take place to a certain extent and with this a slow improvement may be noted in the degree of jaundice.

No reliable laboratory or clinical tests have been developed to determine the amount of interference with liver function.

#### JAUNDICE DUE TO INVOLVEMENT OF THE PANCREAS

Varying degrees of pancreatic swelling are commonly found in patients suffering from gallbladder disease and especially if this has been protracted or recurrent. The whole viscus may be involved, but the head is likely to be more markedly swollen than the rest of the organ. In some cases the head will be large, extremely indurated, and the lobules distinctly outlineable to simulate nodules. The palpable findings may strongly suggest cancer. A single, hard, well-outlined lobule may strongly simulate a stone situated in the ampulla of Vater. Pancreatitis of the character described may be present in an individual without involvement of any other portion of the biliary system and can be responsible for the symptoms produced.

Whether or not jaundice is due to involvement of the pancreas depends upon the anatomic relationships in a given individual. The head of the pancreas may encircle the ampulla of Vater so that inflammation of it will produce pressure against the duct and jaundice ensue. Not infrequently, however, the pancreas has little contact with the common duct except at the level of the junction between the common duct and the pancreatic duct. In such a case, ordinary swelling of the pancreatic head will not be responsible for the development of jaundice. In an occasional case the duct of Wirsung has an entirely independent course and enters the duodenum at a variable distance from the papilla of Vater. In such an individual pancreatitis could not produce jaundice.

Similarly, in cancer of the pancreatic head, the anatomic considerations determine the incidence of jaundice. A large neoplastic mass may be present and the patient may succumb to the disease without jaundice ever developing as a symptom. If the neoplasm produces obstruction of the ampulla of Vater by invasion or direct pressure, there is likely to be present a greatly distended gallbladder and common duct in a manner comparable to obstruction from a primary malignancy of the papilla of Vater.

#### JAUNDICE FOLLOWING CHOLECYSTECTOMY

If jaundice develops promptly after removal of the gallbladder, operative damage to the major ducts has probably taken place. This may be division at the junction of the hepatic and common ducts with ligation of the former, or a ligature may have been applied tangentially at this point to produce marked narrowing and often angulation as well. Jaundice is likely to develop within the first three days and become deep unless the ligature slips and a biliary fistula becomes established.

There are many causes for the development of



jaundice as a late sequel to cholecystectomy. A stone may have been overlooked in the common duct. On the other hand, in some cases stones undoubtedly form in the common duct at a variable period of time after operation. The major ducts may become angulated due to the formation of scar tissue around them; sometimes the stump of the cystic duct becomes fixed to the gallbladder bed in the liver and as the scar tissue contracts angulation of the common and hepatic ducts takes place. In other cases stricture within the lumen of the duct occurs either because of operative injury to the wall from a ligature or clamp, or because of inflammation of the duct which was associated with the gallbladder disease. In cases of angulation or stricture the development of jaundice may be insidious but is usually associated with attacks of pain which simulate gall stone colic. Infection productive of fever and chills is often an accompaniment. The jaundice which develops is likely to be rather deep and often does not subside completely between attacks.

A so-called "reformed gallbladder" may develop and be responsible for jaundice. A reformed gallbladder develops from a gradual dilatation of an overly long cystic duct stump until a pouch has formed which may be responsible for the symptoms and pathologic changes comparable to an anatomic gallbladder. It may contain stones and these may be extruded into the common duct. It may be fixed to the gallbladder bed and produce angulation of the major ducts. It is a well recognized sequel to cholecystectomy and its development can be prevented by ligating the cystic duct close to its junction with the common duct at the time of cholecystectomy. The possibility of permanent liver damage producing varying shades of chronic jaundice has already been mentioned, due to failure of an accompanying liver involvement to subside following removal of the diseased gallbladder.

#### PREOPERATIVE MANAGEMENT

Operations upon patients who are jaundiced are notoriously hazardous because of the possibility of interference with the normal clotting time of the individual and because of his increased susceptibility to infection. In addition, a prolonged jaundice unquestionably has a damaging effect upon all the cellular structures of the body in a manner which cannot be accurately evaluated. The manner in which jaundice acts in increasing a patient's tendency to bleed is not understood. Various theories have been expressed but proof is not at hand. Why one individual who is jaundiced will have a marked tendency to bleed and another individual with the exact clinical and pathologic picture will

lack such abnormal tendency, is a fact which is well known but for which there is no reasonable explanation. Laboratory tests aimed at determining the bleeding time of a jaundiced patient are notoriously unreliable. Operations upon jaundiced patients should be postponed if possible until the jaundice has subsided. At any rate, postponement should take place until the patient is in the best possible general condition for operation.

The significant preoperative management of a jaundiced individual consists of the giving of large amounts of glucose and fluids. The latter should consist in part of normal saline. Glucose may be given in the form of candy, sweetened fluid juices, and a high caloric diet. If the patient cannot take adequate amounts by mouth, glucose should be given in solution per rectum or into the vein. A period of several days is time well spent in such management. Experience with the use of calcium in these cases at the University Hospital has been very disappointing and it has been discontinued. It seemed to be entirely ineffectual in controlling the tendency of an individual to bleed. On the other hand, the careful preparation of the patient as outlined above has practically eliminated the bleeding tendency in patients with jaundice, and where the tendency still persists, it has been relatively slight and controllable by other means. The latter consists of the injection of horse serum into the deltoid muscle of such individuals who, during operation, show a tendency to bleed. There has been no single case in which this did not effectively control the oozing tendency in from one to five minutes.

The effect of the horse serum may last only from twenty-four to forty-eight hours and following that period oozing may develop again. It is advisable, therefore, in patients in whom oozing has been a manifested phenomenon during operation and controlled by the introduction of horse serum, to give a transfusion of blood the day following operation. This will be permanently effective in most cases. In addition, the generous use of glucose is indicated during the critical postoperative days.

#### SUMMARY

1. Uncomplicated disease of the gallbladder, whether from inflammation, calculi or neoplasm, is not productive of jaundice as a symptom.
2. Jaundice may be a significant symptom in involvement of any other portion of the biliary system, occurring as a complication of gallbladder disease or developing as an independent condition.
3. Calculi may be present in the common duct indefinitely and jaundice never be manifested as a symptom.

4. A calculus within the common duct may produce obstruction and jaundice, and without producing pain or the general reaction of infection.

5. Calculi within the common duct may cause attacks of colic, often with chills and fever, *and not produce jaundice*.

6. Before removing a gallbladder, the whole biliary system should be carefully examined at operation to rule out, especially, the presence of a common duct stone.

7. Permanent liver damage may take place from obstruction or inflammation of the biliary ducts and lead to chronic jaundice.

8. A jaundiced patient is a poor surgical risk because of a possible abnormal tendency to bleed and decreased resistance to infection.

9. When operation must be performed upon a jaundiced patient, preoperative preparation aimed at building up an ample carbohydrate and fluid reserve is indicated. Such preparation tends to combat successfully an abnormal blood coagulation function of the jaundiced individual.

10. Horse serum injected hypodermically into muscle has a marked tendency to control abnormal bleeding manifested by a jaundiced patient during operation. This should be followed by a blood transfusion within twenty-four hours.

## FUNCTIONAL DISORDERS OF THE GASTRO-INTESTINAL TRACT\*

WILLIAM A. RENDLEMAN, M.D., Davenport

By functional disorders we mean symptoms which cannot be shown to result from pathologic changes. They are characterized by exacerbations and remissions, depending upon the emotional stresses to which the patient is subjected. The list at present is large. Whether, as time goes on and our diagnostic facilities increase, we shall be better able to classify and place in their proper category the large number of functional syndromes, remains to be seen. Chemical physiology and pathology are so little understood that it requires courage to say that many symptoms now classed as functional may not have an organic background.

It is not the purpose here to include alimentary symptoms secondary to pathology of distant organs, such as goiter, tabes, appendicitis, etc.; nor are we concerned about those primary dyspepsias, the result of dietetic errors and bad habits of smoking and drinking. We are most interested in those vague and indefinite symptoms which are manifestations of what has been well called by

Alvarez "an inadequate constitution." Poor material was used in the construction of the nervous systems of these individuals. Gastro-intestinal symptoms cannot be considered apart from neurosis of other parts of the body, since the same inadequacy applies to the entire system. At one time the chief complaint may be gastric, at another time, the heart, or the kidney. Proper evaluation of one requires consideration of the others.

The alimentary tract, as well as the other viscera, is under the control of the vegetative nervous system through two sets of nerves, the vagus and the sympathetic. The proper balance of the antagonistic actions of these two systems determines the normal function of this important tract. Hormones from the endocrine glands regulate their activity. Overstimulation of the vagus nerve causes hypertonus or vagotonia; overstimulation of the sympathetic nerve causes hypotonus or sympathicotonia. Either one results in an unbalanced vegetative system.

Vagotonia gives rise to hypersthenic symptoms, spasm and secretion of mucus from mouth to anus. Pharyngospasm, laryngospasm, esophagospasm, cardiospasm, pylorospasm, peristaltic unrest, reverse peristalsis, spasm of the anal sphincter, hypersecretion of mucus and hydrochloric acid, and hypersensitiveness of the gastric and intestinal mucosa, are all manifestations of an activated vagus. These give rise to spastic constipation with the chopped off, dry or penciled stool, sour eructations, heartburn, fullness in the epigastrium, gas in the bowel, peristaltic unrest, dysphagia, lump in the throat, vomiting of mucus, periodic cramps with mucus in the stool, vomiting immediately after eating, and other symptoms not characteristic of any organic disease. Sympathicotonia is characterized by hypotonus, or sluggish secretory and motor activity. Anacidity, atonic constipation, incontinence of the pylorus, unstable nervous system, neuroses, and psychoses are common. One seldom sees a pure picture of vagus or sympathetic unbalance. Usually some symptoms of both are present.

Neuroses and psychic instability are likely to begin when responsibility is assumed. The advent of children in early married life, hard economic conditions, disharmonies of family life, disappointments in love, maladjustments to his or her surroundings, thwarted ambition, suppressed desires, and psychic shock are factors which may initiate upsets in the person with an unbalanced heredity. Of most importance is the confused economic situation of today. In the subconscious mind of one who is already by heredity unfit, the problem of meeting obligations and earning a bare existence assumes too important a place. Nervous

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disorders in the family history are frequently encountered and it is not uncommon to find among relatives insanity, periodic drinkers, epileptics, cranks, faddists, reformers, criminals, and eccentrics. This history should be obtained from friends as well as from the patient.

It is known that emotions greatly influence the functions of the alimentary tract. Digestion, appetite, and defecation may depend on the nature of the emotions. Disgust, anger, or fatigue may stop peristalsis or reverse it, causing constipation, vomiting, or retention of food in the stomach. Cramps and diarrhea are known to follow fright, fear, or anxiety. Indigestion and diarrhea may follow eating when there is mental or physical fatigue. Peace of mind, physical rest, and meals eaten with pleasant surroundings are conducive to good digestion and good bowel elimination. Certain foods may act as direct irritants to a hypersensitive mucosa. Other foods produce a true allergic reaction as indicated by the sudden onset of symptoms immediately after eating, violent cramps, and the presence or history of hives, asthma, eczema, and hay fever. The most common food offenders are shellfish, strawberries, apples, condiments, onions, honey, cabbage, and melons. Probably the most common cause of disturbance in the bowel is some form of physis. Do not forget the phobias of cancer and ulcer. Serious abdominal disease in friends often forms the basis for complaints in this region. The history is often the cue to a diagnosis. In fact, a thorough history of the patient, past and present, his symptoms, habits, environment, and ancestry contributes more to an understanding of his (usually her) case than all the examinations and x-rays combined.

The symptoms of functional disorders of the gastro-intestinal tract are characterized by their indefiniteness, variability and change from time to time. These patients lack confidence in themselves and are emotionally unstable. They are out of tune with their surroundings, unwilling to accept the hardships of life, are distrustful and feel the lack of sympathy shown them. They have exaggerated reflexes, increased sensibility to pain, moist palms, palpitation, dizziness, and a feeling of depression and inferiority. Fatigue with little or no exertion is characteristic. The abdominal complaints are belching, feeling of fullness in the epigastrium after meals, distention, flatulence, sour eructations, dysphagia, nausea, and disordered appetite. Vomiting, when present, comes immediately after a meal. A patient may complain of vomiting after every meal without losing weight. Periodic spells of colic and diarrhea with mucus in the stools may persist throughout life.

The close association of one or more of these symptoms with nervous shock or excitement will often spot the condition as functional. I remember a lady who took codeine to prevent diarrhea every time she went to a card party.

Of all abdominal disorders a neurosis of the alimentary tract is one of the most difficult to diagnose. Superficially, these cases appear easy, and only a few minutes of history taking will convince the experienced clinician of their functional nature. It must be remembered, however, that neurotic patients may have organic diseases camouflaged by the neurosis. The gastro-intestinal tract is peculiarly susceptible to reflex and toxic disturbances from other organs; consequently among the many conditions to be eliminated are pregnancy, goiter, tuberculosis, gallstones, appendicitis, pelvic infection or tumor, heart disease, and many others. Beginning decompensation of the heart and angina are frequent causes of flatulent dyspepsia.

The diagnosis must depend on a painstaking history of the symptoms, past and present, the patient's habits, mode of living, business, vices, and pleasures, as obtained from him and his friends. His ancestry must be investigated for insanity, epilepsy, and other evidence of inherited weakness. A thorough examination is necessary to convince the examiner and especially the patient that there is nothing serious. Once this is done, a diagnosis may be presented to the patient, one that will gain his confidence, the first requirement to insure results in treatment. The diagnosis of cancer or ulcer is direct and positive and treatment definite. The patient is satisfied and resigns himself to his treatment, expecting relief. The diagnosis of a neurosis is indirect and negative. After subjecting the patient to a long, trying, and expensive examination, a diagnosis is made which often leaves him resentful and unconvinced. His problem is not solved; it is turned back on him for his own solution and cure. He is told that his relief lies within himself and cannot be handed to him by someone else. He must make his own decisions not to worry about financial losses, love affairs, or other personal problems which to him are serious. The fact that he is in his present predicament is proof of his inability to control his cure.

The treatment of these cases presents difficulties not encountered in organic diseases. In the latter the disease is the primary consideration and the patient secondary, while in the functional case the patient is the most important consideration. The first essential is confidence in the physician, gained mostly by the thoroughness of his examination and his understanding of the case. Successful man-

agement requires all the patience, tact, and sympathy which the physician can exhibit. The diagnosis of a functional condition may so relieve the victim of cancer phobia as to produce an immediate cure. On the other hand, it may require a great amount of tact to convince him and make him understand how he can suffer so much when nothing is wrong. Unless this information is presented in the right way, he will be resentful and seek other practitioners more sympathetic, although less truthful.

Oliver Wendell Holmes once said that treatment must begin with the ancestors. As in other inherited tendencies not much permanent relief is to be expected. It is a handicap which the patient must learn to endure. Fortunately, as the years go by, improvement occurs often in spite of many surgical encounters and other ill-advised treatment. The patient should be made to understand that the condition is persistent but not serious, and that it can be controlled.

Since mental and physical fatigue are among the most constant symptoms, rest is an important therapeutic agent. In severe cases, rest in a hospital, a sanitarium, or the house of a friend away from the numerous irritations of home, family rows, noise of children, telephone calls, and bore-some visitors may be necessary. Milder symptoms may be controlled by shortening the work hours (now so common among the overall class) and increasing the hours of recreation. Regular hours on the golf course or in the garden give relaxation. A rest period of half an hour after lunch and before or after dinner is worthwhile. Withdrawal from church, civic, and other public duties may be necessary.

The diet should be balanced in regard to vitamin and mineral content. In subjects of vagotonia it is advisable to put the patient on a smooth diet containing very little cellulose. Cellulose is not digestible and causes flatulence and discomfort. Disturbances of the bowel are often completely relieved by the withdrawal of bran, raw vegetables, fruits and physics. The constipation and excessive peristalsis are relieved because of the relaxation of the spastic bowel wall. Many patients find that there are certain foods which cause cramps and colic, and these, of course, should be eliminated from the diet. If there are indications of allergy, it may be necessary to use an elimination diet to find the offender. Skin tests have usually proved disappointing to me in this determination.

Sedative drugs should be generously used to secure rest and relaxation for the whole nervous system. Atropine or belladonna is useful in counteracting the vagus stimulation. Those in-

dividuals who are subject to cramps and diarrhea while under a nervous strain may relieve themselves of this fear by taking paregoric before an expected situation develops.

Physiotherapy and outdoor exercises are of especial benefit to the mentally tired subject whose work confines him within doors. Outdoor sports give him a mental change and relaxation which nothing else will accomplish.

In this rambling paper I would emphasize that before making a diagnosis of a neurosis, all possible organic diseases must be eliminated. If no other benefit is derived from our careful examination, the patient is saved from useless and harmful operations. In college and clinic the student sees only organic disease. When he enters the practice of medicine he is likely to attribute too much importance to trivial findings as a cause of the neurosis. Teeth, gallbladders, and often more important organs, are sacrificed with the result that the condition of the patient is worse instead of better. The brilliant success of the surgeon in acute abdominal emergencies does not warrant overconfidence in the surgical treatment of chronic abdominal symptoms.

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#### DIVERTICULOSIS OF THE COLON\*

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Diverticula of the colon are not infrequently accidentally discovered during the routine x-ray gastro-intestinal examination with barium by mouth. Less frequently, they are observed during or following a barium enema. They appear as button-like projections from the intestinal wall and also as sharply circumscribed shadows still visible several days after the expulsion of the contrast meal or opaque enema. They are usually multiple and affect males two or three times as often as females. Ninety per cent of all diverticula of the large intestine are found in the descending colon and sigmoid. Diverticulosis of the colon has little clinical significance, although many of the patients are constipated and some of them complain of spasmodic pains in the region of the diverticula.

Many diverticula are known to be congenital. There are also theories, repeated so often in the literature that they are apparently accepted as facts, that they may be acquired. According to one theory it is supposed that weak spots in the wall of the colon are pushed out as pockets or pouches of various size and shape by gas under high pressure, much in the same way as the inner tube of an automobile tire is blown out as a bubble

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through a hole in the casing. To me this theory appears utterly fantastic for two reasons. First, the walls of the colon are very tough, and it seems inconceivable that great enough pressure could be generated to produce a blow-out, especially when we remember that the colon is a tube, more or less open at both ends, and provided by nature with a vent at one end to take care of just such emergencies. Second, if a weak spot in the wall were expanded into a pocket, its wall would become still thinner and weaker. The gas pressure not being diminished, it seems likely that the bubble would continue to expand until it reached the bursting point, in the same way as the inner tube blows out. Perforation, however, does not occur in this way. Therefore, I venture to prophesy that eventually diverticulosis of the colon will be considered a congenital anomaly, of not much greater importance, clinically, than the obesity and constipation so commonly incidental to middle age.

On the other hand, diverticulitis, inflammation of a diverticulum, presents a fairly definite clinical picture. It is not as common as one would expect, diverticulitis occurring in only about seventeen per cent of the cases of diverticulosis. It is certainly not as common as appendicitis, a somewhat analogous disease. Incidentally, the signs and symptoms of diverticulitis are those of left-sided appendicitis; localized pain, tenderness, rigidity, fever, vomiting and leukocytosis. Spasm of the colon in the region of the inflamed diverticula is usually observed on x-ray examination.

The constipation of overweight middle-aged people who lead sedentary lives, the diets containing large amounts of roughage so popular among them, and the periodic use of cathartics, probably

promote retention of fecal material within the diverticula and their invasion by bacteria. The patients are often comfortable on a bland diet and mild laxatives such as agar, belladonna, and mineral oil. When diverticulitis progresses to abscess formation, perforation or obstruction of the bowel, as it does in rare instances, prompt surgical interference is necessary.

It is said that the ratio of diverticulitis to malignancy of the colon is one to three. It is important that they be differentiated. Absence of blood in the stools and no history of loss of weight both point to diverticulitis. Osler, with almost a genius for miosis, says that x-ray study is of value. However, it is not always easy, nor is it necessary, to make a fine distinction between advanced diverticulitis, with the formation of a tumor-like mass or obstruction, and cancer. The duty of the roentgenologist to the patient is fulfilled when he is able to report the presence and location of such an obviously surgical lesion, regardless of its cause.

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Fig. 1. Diverticula of descending colon and cecum shown by opaque enema.



Fig. 2. Multiple diverticula of transverse and descending colon shown by remains of contrast meal taken forty-eight hours previously.



Fig. 3. Multiple diverticula shown by contrast meal. This patient has diverticulitis.

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## Case Report

### A RARE ABDOMINAL CONDITION\*

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The case I am reporting is an intussusception with a slough of 47 centimeters of ileum including a Meckel's diverticulum per rectum with spontaneous recovery. There was a complicating pyuria which has subsequently cleared.

In reviewing the literature, there is no uniformity of opinion as to the cause of intussusception, although a long ileocecal mesentery and mobile cecum and ascending colon seem to predispose, and an overactive peristalsis with a constriction or abnormality along the bowel is usually reported. These may be due to an accident, injudicious eating, purgatives, worms, or occasionally a polypus or Meckel's diverticulum. The condition is more common in males than females and occurs at any age, but is essentially a disease of infancy and early childhood, about 70 per cent of the cases occurring during the first year of life.

The symptoms of intussusception are those of an acute intestinal obstruction; severe, somewhat intermittent, abdominal pain. Shock soon develops with pallor, cold sweat, rapid pulse, dilated pupils, and obstinate confinement of the bowels. There may be one bowel movement, and often passage of mucus and then blood, with finally complete stoppage even of gas. Vomiting is reflex in character. There is usually a tumor mass described as sausage-shaped, and the temperature which was normal at first may reach 104 degrees within twenty-four hours. In adults many of these symptoms are absent but definite obstructive symptoms are present.

Treves<sup>1</sup> explains the pathologic process of spontaneous recovery in two ways. Adhesions form between the peritoneal surfaces of the entering portion and the ensheathing portions of the intestine. If a separation takes place first at the end of the middle layer the intussusception will straighten out at the apex. Later as separation takes place in the middle layer near the entering portion of the intestine, the section will be passed with its peritoneal layer outermost. If the sepa-

ration takes place at the two ends of the middle layer in the reverse order, the section will be passed with the mucus surface outermost. The former is the common one, and the latter with the intestine turned inside out is relatively rare. The intestine in all cases is gangrenous and macerated.

The present day treatment of choice is operative, and the earlier the operation, the lower the mortality rate. The treatment reported in the early literature is interesting. Dr. John Pearson of London<sup>2</sup> in 1796 treated an adult male with intussusception by bleeding, leeches, and the intake of a solution of vitriolated magnesia. The patient passed a large slough per rectum and made an uneventful recovery. By 1862<sup>3</sup> the treatment had changed to large doses of opium with some blue mass. This patient of Dr. Hearne's also discharged a large loop of bowel spontaneously and made an uneventful recovery. In 1908 Fitzwilliams<sup>4</sup> reported one thousand cases of intussusception, and in 1921 Perrin and Lindsay<sup>5</sup> reported four hundred cases without a single case of slough with spontaneous recovery. All were diagnosed early enough to make operative procedure the treatment of choice. Thompson<sup>6</sup> and Mayo<sup>7</sup> each reported a case of spontaneous expulsion of intussuscepted bowel with complete recovery. In both of these cases diagnosis was not made until too late for operative intervention.

#### CASE REPORT

E. A., a Scandinavian boy, seventeen years of age, was seen by me at his country home about noon January 6, 1934. The only item of interest in the past history was an attack of abdominal pain when the patient was three years of age. The spell cleared in a few days and was diagnosed as a probable appendicitis.

During the examination the boy was rolling around the bed moaning with pain which he localized to the upper abdomen and the small of the back on the left side. His bowels had moved that morning just before the onset of pain. There was no localized tenderness or rigidity; some nausea but no vomiting; the abdomen was not distended. His temperature was 98.8 degrees, pulse 110. The urine was milky and when examined in the laboratory a short time later, was found to have a specific gravity of 1.026, to be acid in reaction, negative for sugar, positive for albumin, and microscopically loaded with pus cells on the uncentrifuged specimen. I gave him morphine sulphate  $\frac{1}{4}$  grain, and atropine  $\frac{1}{120}$  grain, hypodermically, and he was soon relaxed and asleep. I was to return in the evening, but was called by phone and informed he was much better, and that they would call if they needed me. Two days

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later, I was called, and examination showed the abdomen markedly distended, but there was no severe pain. The bowels had not moved. The temperature was 100 degrees, and the urine was still loaded with pus. An enema was ineffective, no gas or fecal material being obtained. He vomited once that day. There was no palpable mass.

On January 10, four days after onset, another enema produced considerable gas and some fecal material, and the patient was relieved. I started one of the plain mineral oil emulsions by mouth in small doses, and allowed a liquid diet only. On January 12 there was a recurrence of the left-sided abdominal pain radiating to the back. An opiate was required to control the pain. A few hours later, he had a large bowel movement, naturally with a great amount of gas. On January 14, just eight days after the onset of symptoms, the patient passed per rectum the specimen which I sent to the late Dr. Clarence Baldrige who referred it to the department of pathology which made the following report:

"The specimen consists of a segment of bowel which is intussuscepted. The leading end is closed off as a blind pouch. When the invaginated bowel is pulled out restoring the normal relationship of bowel wall to mesentery, the specimen is seen to consist of 47 centimeters of small intestine together with about seven centimeters of its mesentery attached. The mesentery is in fan-shape, holding the bowel in the form of a loop as seen in the small intestine. This segment of bowel is open at each end, and gangrenous throughout. About three centimeters below the upper end, a diverticulum ten centimeters in length opens off the bowel lumen in a position opposite the mesenteric attachment. This diverticulum has a serosa and muscularis continuous with the coats of the bowel wall. The diverticulum does not have a mesentery. This diverticulum was invaginated with the mucosal surface externally and was the leading portion of the intussusception. No sections are made for histologic examination because of the extensive autolytic changes. Diagnosis: Meckel's diverticulum and intussuscepted ileum."

The subsequent history is one of gradual recovery with no unusual symptoms. He remained in bed for another week; the urinary symptoms and findings cleared up entirely by February 15, 1934, and he has been working as hired man on a farm since then without loss of time. He has to be careful with condiments and fats in his diet, since they seem to cause him some distress, but he has lost no time from work because of illness for over a year.

## COMMENT

The striking features of this case are that obstruction was not complete for more than four days, probably not more than three; that a large amount of pus in the urine obscured the diagnosis; that there was no passage of blood and no palpable tumor mass at any time; and that the patient made a complete recovery.

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### CLINICAL NOTES FROM THE COLLEGE OF MEDICINE

#### AN ANALYSIS OF TWENTY-THREE CASES OF PLACENTA PRAEVIEW

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From the Department of Obstetrics and  
Gynecology

Placenta praevia is a condition of grave importance to physicians in general practice as well as to those who confine their practice to obstetrics alone. Its incidence is variously reported from one in two hundred to one in one thousand obstetric patients; hence, every physician with an obstetric practice will encounter this complication. There is considerable difference of opinion as to the best method of handling patients with placenta praevia, and since this clinic has adhered strictly to the conservative method, it was felt that an analysis of our results would be of interest.

The following study analyzes twenty-three cases of placenta praevia which occurred from July 1, 1926, to June 30, 1935, at the University Hospitals. The total number of deliveries during that period was 4,996, giving a placenta praevia incidence of one in 217 cases, or 0.05 per cent. There were twenty partial placenta praevias and three of the central type. These cases are summarized in Table I.

Two of the twenty-three mothers died, giving a maternal mortality rate of 8.7 per cent. One patient died of septicemia thirty-six days after delivery. The fact that the vagina had been packed before the patient was admitted to the hospital may or may not have had some bearing on the puerperal sepsis. The other died suddenly during

delivery. Postmortem examination revealed evidence of a blood stream infection, the origin of which was undetermined.

TABLE I

Method of Treatment	Patients		
	Number	Deaths, num ber	
		Maternal	Fetal
Spontaneous delivery.....	2	0	0
Spontaneous delivery, Rupture of membranes.....	3	1	1
Bag, followed by:			
Low forceps.....	2	0	0
Version.....	9	0	6
Spontaneous delivery.....	2	0	1
Breech extraction.....	1	1	1
Braxton Hicks version.....	2	0	2
Version, breech extraction.....	1	0	0
Cesarean section, with hysterectomy ..	1	0	0
TOTALS.....	23	2	11

The first patient, No. K14494, eighteen years of age, a primigravida, eight months' pregnant, was admitted to the ward with a history of vaginal bleeding for the preceding four days. The vagina had been packed by the local physician to control hemorrhage. Artificial rupture of the membranes was followed by spontaneous septicemia thirty-six days after delivery. The second patient, No. F4152, thirty-five years of age, an octigravida, seven and one-half months' pregnant, was admitted to the ward with a history of vaginal spotting of three weeks' duration. Delivery was completed after insertion of a Voorhees' bag followed by breech extraction of a premature infant. The patient died suddenly on the delivery table five minutes after delivery. Postmortem examination revealed positive cultures for hemolytic streptococcus in both the maternal and fetal hearts' blood with additional evidence of septicemia in the maternal liver and spleen.

The uncorrected fetal mortality rate was 47 per cent, but of the twenty-three babies, thirteen weighed less than 1,500 grams. The mortality rate when calculated on the basis of all babies above 1,500 grams was 30 per cent, and if only full term babies (2,500 grams or more) are considered, the rate becomes 20 per cent. These results compare favorably with those from clinics advocating cesarean section as a routine treatment for placenta praevia.

The major cause of immediate death in placenta praevia is shock, secondary to loss of blood. The liberal use of blood transfusions is a necessary adjunct in the treatment of placenta praevia, if one is to keep the maternal mortality rate at its lowest level. Of these twenty-three patients, eight received one or more transfusions at the time of,

or immediately after, delivery. As soon as placenta praevia is diagnosed, it is our practice to have a donor matched and available, in case transfusion should be necessary.

The cardinal symptom of placenta praevia is painless vaginal bleeding in the third trimester of pregnancy. When this occurs after the sixth month, the presumptive diagnosis is placenta praevia, and the patient should be handled as such until a positive diagnosis is made. Since placenta praevia can be definitely diagnosed only by vaginal examination, one should be prepared to deal with the complication as soon as it is suspected. This means that arrangements should be made for the insertion of a bag before vaginal examination is attempted.

In this clinic, when placenta praevia is suspected, it is the routine practice to have sterile Voorhees' bags available before vaginal exploration is made, which procedure may or may not provoke severe bleeding. If cesarean section is planned on the basis of symptoms alone, vaginal examination should not be done because of the increased danger of infection.

In general, the method of treatment depends upon the findings at vaginal examination. If only a slight margin of placenta obtrudes upon the cervical os and bleeding is not marked, the delivery is allowed to progress spontaneously. However, it is usually advisable to rupture the membranes, especially when the presenting part is floating, since this will allow it to descend, act as a tampon and aid in controlling the hemorrhage. If a larger portion of the cervix is covered by placenta and bleeding is more marked, a large sized Voorhees' bag is inserted, which aids in the control of the hemorrhage while the cervix is dilating. Immediately following expulsion of the bag, which occurs as soon as the cervix is sufficiently dilated to permit its passage, the delivery is completed by forceps if the head is well in the pelvis, or by version with breech extraction if the head is above the level of the spines. Cesarean section is probably the procedure of choice in certain selected cases of central placenta praevia, especially when the patient is a primigravida with a viable child.

Ude and Urner\* have recently reported their results with the roentgenologic diagnosis of placenta praevia by the instillation of an opaque medium into the bladder. Their report covers thirty-five cases of abnormal bleeding in the third trimester of pregnancy. A diagnosis of placenta praevia was made in fourteen of these by roentgenologic technic. Thirteen of these fourteen cases later proved to be placenta praevia either

\*Ude, W. H., and Urner, J. A.: Roentgenologic diagnosis of placenta praevia. Amer. Jour. Obst. and Gynec., xxix:667-671 (May) 1935.



by vaginal examination or inspection at the time of cesarean section. The greatest value of the roentgenologic technic lies in the ability to make a fairly accurate diagnosis without vaginal examination, a procedure which is dangerous when delivery is to be by the abdominal route.

Since the period covered by the present report, this method of diagnosis was used once with success at the University Hospitals.

### THE FINLEY HOSPITAL CLINICO-PATHOLOGIC CONFERENCE

#### PROBLEMS IN COMPENSATION ADJUSTMENT

DONALD C. CONZETT, M.D., Dubuque

The adjudgment of disability following injury is a problem which confronts the medical profession daily. In particular, the insurance companies are demanding more exact information and the physician, therefore, must be certain regarding his findings. Inadequate examinations have frequently proved embarrassing when disability claims have come into court for settlement. Two cases have recently come to our attention illustrating some of the difficult problems.

##### CASE ONE

E. P., a construction worker, struck his head on some overhead pipe while crawling through a tunnel. He was momentarily stunned and slightly dizzy immediately thereafter. There was no visible laceration but a swelling appeared on the vertex. He reported to the office of the company doctor but finding him out, returned to work and completed his day's work. By the following day his symptoms had subsided other than some local tenderness, and he continued work. Twenty days later he consulted his family physician because of weakness in the left arm and leg. He had fallen twice the day before at work and his fellow workmen had noted that the left side of his face looked odd. He was immediately hospitalized. On the following day when we examined him the above story was re-stated. He had never been ill, was married and had four healthy children. His wife had had no miscarriages. Venereal history was denied.

The insured was thirty-six years of age, of medium weight and height. He was lying comfortably in bed without evidence of pain. Examination of the scalp about the site of injury revealed

no scars and no tender areas. Examination of the eyes revealed a sluggish reaction to both light and accommodation. The right pupil accommodated adequately but the response in the left eye to light was slow. There was a definite paralysis of the muscles controlling the upper eyelid. When the patient smiled or attempted to whistle, the left side of the mouth remained down and the normal facial lines about the nose were obliterated. Hearing showed impairment in the right ear rather than the left in that he could hear an Ingersoll watch tick at a distance of one inch on the right and six inches on the left. When asked to protrude his tongue there was a deviation toward the left. Examination of the chest revealed no pathology in the lung fields. The heart was normal in size and shape; regular but rapid rhythm of 96 per minute; the heart tones were normal; no accentuations or murmurs; a "water hammer" pulse could not be elicited. The blood pressure was 116/70. The abdomen though slightly rigid throughout was devoid of any masses or areas of tenderness. There was a mole the size of a penny three centimeters above the pubis. The genitalia were normal in size. No evidence of penile scarring could be seen. Two warts were noted on the shaft of the penis. These have been present four or five years. Both inguinal canals were firm.

Examination of the upper left extremity showed a flaccid paresis of the entire member. Movements of the upper arm were about 50 per cent of normal, including biceps and triceps action. Involvement of the forearm was greater in that supination was almost nil and pronation only 25 per cent of normal. There was evidence of beginning atrophy of the extensor muscles of the forearm. The wrist was held in a flexed position and extension was only slightly possible. He could not make a complete fist and could only approximate the thumb to the index finger, and this with great difficulty. Triceps reaction was negative and no response could be obtained with percussion over the extensor tendons. There was likewise about a 50 per cent impairment in function in the left lower limb. The knee jerk was faintly positive on both legs. No pathologic reflexes could be elicited, Babinski's, Oppenheim's, Gordon's, and Chaddock's signs all being negative. There was no ankle clonus demonstrable. The extremities on the right side were normal. A spinal tap was done and the flow was 24 drops on the minute; no increase in pressure and clear. The Wassermann and Kahn tests on both blood and spinal fluid were four plus.

This man was returned to the care of his physician with the suggestion that specific treatment

be instituted. A report was submitted to the insurance company that in our opinion this employee's disability was not on a compensable basis.

#### CASE TWO

The following case illustrates a problem in which the applicant claimed continuation of permanent disability under a clause in his life insurance policy.

G. T., an unmarried farmer, thirty-seven years of age, consulted his home physician complaining of pain in the chest and constant tiredness. He was treated for a supposed neuritis. When improvement did not occur he was referred to a well known clinic where, following examination, a diagnosis of tuberculosis of the left kidney was made and a left nephrectomy done. This wound later broke down and drained for four months. A few months later he returned to the clinic and a spinal fusion of the lower dorsal spines was performed by the Albee method. He was then fitted with a Taylor brace which he has worn intermittently until the present.

This insured's complaints centered about the fact that he had a definite weakness and aching in the back, particularly when on his feet. He tired easily and because of the nature of his disease, required considerably more rest and sleep than the ordinary individual. He had been gaining weight recently and felt well when he was quiet and did not exert. He found that his brace was essential when any exertion was attempted.

This man was of average height and weight and appeared to be in good health. His carriage was erect and the deformity in his back was scarcely evident. The head and neck were negative; the throat was clear and the teeth in good repair. Chest expansion was good and no evidence of pulmonary disease was evident by percussion or auscultation. The heart was within normal limits and regular in rate and rhythm. Other than a rather poorly developed muscular covering, the abdomen was negative for evidence of disease. There was a well healed scar in the left lumbar region which was neither tender nor adherent to the underlying muscle. The extremities were negative except for an operative scar over the left tibia. Examination of the spine showed a well healed scar in the midline of the back about five inches in length and extending from about the fifth dorsal to the first lumbar spines. The spine showed a slight kyphosis in the lower dorsal portion, but there was no tenderness over the spinous processes above or below the incision. The processes in this region were not defined because of the thickness due to the graft. Trunk flexion forward and

to either side was possible to only a slight degree less than normal. The dorsal spine remained rigidly fixed. Rectal examination revealed a small non-tender prostate and the seminal vesicles were not palpable.

In order to judge this man's disability more adequately and make a more accurate prognosis, an x-ray examination of the region of his lesion in the spine was ordered. Dr. L. G. Ericksen, roentgenologist, reported as follows: "Anterior-posterior and lateral films of the thoracic spine show a destructive process involving the bodies of the sixth and seventh thoracic vertebrae. The lesion is entirely destructive and destroys from the articular surfaces inward on each body. A large portion of the body is destroyed and there is a kyphosis present. A bone graft is seen and there is a suggestion of a small paravertebral abscess present. Conclusions, tuberculosis of the spine, and bone graft."

Further, to ascertain if any foci of infection remained in the genito-urinary tract, a catheterized specimen of urine was obtained and submitted for examination. Dr. F. P. McNamara, pathologist, reported as follows: "Albumin, barely positive; sugar, negative; sediment, rare leukocyte and cylindroid, a few urates; color, amber; specific gravity, 1.018; acetone, negative; turbidity, clear; reaction, acid; bile, negative. Smears negative for tubercle bacilli. Guinea pig has been inoculated." Six weeks later he reported that the guinea pig showed no evidence of tubercle bacilli.

In this case our conclusions to the insurance company were as follows: "Superficial examination of Mr. T. would probably not reveal a great deal of disability. However, when it is recalled that he has a loss of one kidney, that his spine is surgically rigid and that a suspicious abscess is now existent, this man would be in danger of recurrence of his disease under the regime necessary in his work as a farmer. In our opinion this man should still be considered as totally disabled."

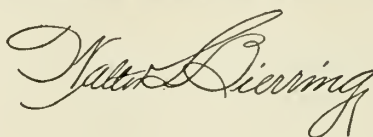
#### CONCLUSIONS

In the first case cited we felt that the diagnosis was cerebrospinal syphilis with a probable gumma of the brain. It was our further conclusion that the mild trauma sustained was incidental and he should be denied industrial compensation. This case further emphasizes the value of routine Wassermann tests in patients with unusual reactions to minor injuries.

The second case illustrates the liability of the tuberculous patient to recurrence of the disease in sites other than the original focus of infection.



# STATE DEPARTMENT OF HEALTH



## MEETING OF THE IOWA PUBLIC HEALTH ASSOCIATION

The Tenth Annual Meeting of the Iowa Public Health Association was held at Hotel Savery in Des Moines, Tuesday, April 28, immediately preceding the Eighty-fifth Annual Session of the Iowa State Medical Society. More than one hundred persons attended the noon luncheon meeting to hear the discussion of public health provisions of the Social Security Act. At the afternoon session, R. A. Vonderlehr, M.D., Washington, D. C., Assistant Surgeon General, United States Public Health Service, discussed Syphilis as a Public Health Problem. The subject presented by Sidney O. Levinson, Director of the Samuel Deutsch Serum Center, Michael Reese Hospital, Chicago, was The Value of Human Convalescent Serum in Measles and Poliomyelitis. Both of these discussions were illustrated by lantern slides.

### DIPHTHERIA

Archibald L. Hoyne, M.D., of Chicago, Superintendent of the Municipal Contagious Disease Hospital, and Attending Physician and Chief, Department of Contagious Diseases, Cook County Hospital, outlined the treatment of malignant types of diphtheria. The following paragraphs, written by Dr. Hoyne, will be of interest to readers of the JOURNAL:

"Notwithstanding the great advances that have been made in the prevention of diphtheria by active immunization, this disease continues to be a public health problem. Frequently, parents fail to avail themselves of the diphtheria preventive. Because of this, too many cases of diphtheria still occur.

"As a rule, diphtheria does not come on suddenly and so parents do not always call physicians early, because the seriousness of the illness is not apparent at that time. If a diagnosis of diphtheria is not made until late in the disease, even massive doses of diphtheria antitoxin may fail to save the child.

"In the Municipal Contagious Disease Hospital of Chicago and also in the Cook County Hospital,

quite as much reliance is placed on the use of ten per cent glucose intravenously as upon the administration of diphtheria antitoxin. In those cases which have not received diphtheria antitoxin before the third day of the disease, glucose is always given and is a great aid in preventing or overcoming the action of the diphtheria toxin. In diphtheria of the "bull neck" type, ten per cent glucose in quantities of from 500 c.c. to 2,000 c.c. may be injected daily for a period of ten days to two weeks or sometimes even more.

"Before the use of ten per cent glucose in the manner described, the fatality rate for the so-called malignant types of diphtheria was sometimes 65 or 70 per cent. With the glucose treatment, however, the rate has been reduced to approximately twelve per cent."

### ATTENDANTS AT HEALTH MEETING

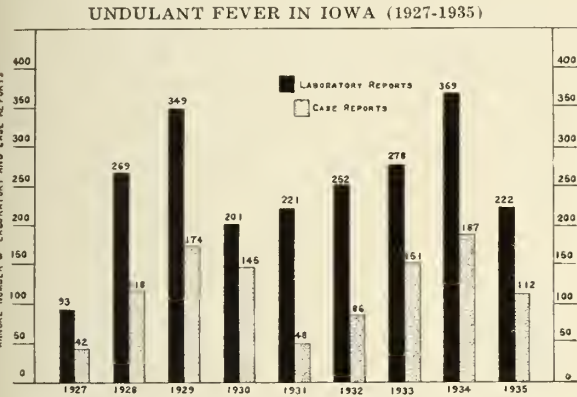
Seven great speakers and visitors from outside the state, attended the recent meeting of the Iowa Public Health Association. Positions or organizations represented by the 105 Iowa persons who registered for attendance were as follows:

Physicians, twenty-five, of whom twenty were listed as health officers; public health and visiting nurses, forty-five; mayors, two; CCC Camp district surgeon and medical officers, three; Iowa Emergency Relief Administration, two; University of Iowa, five; Iowa Tuberculosis Association, four; other voluntary health workers, thirteen; State Department of Health, ten; other state institutions, one.

Counties represented and the number from each county were as follows: Allamakee, one; Black Hawk, seven; Boone, three; Buena Vista, three; Cerro Gordo, two; Clarke, two; Crawford, one; Dallas, two; Dubuque, five; Fayette, two; Floyd, one; Hamilton, two; Iowa, one; Jasper, one; Johnson, five; Keokuk, one; Linn, six; Marion, one; Marshall, two; Muscatine, one; Page, one; Plymouth, two; Polk, forty-three; Poweshiek, two; Shelby, two; Story, three; Warren, two; Webster, one; Winneshiek, one; and Woodbury, four.

UNDULANT FEVER IN IOWA  
Reported Incidence

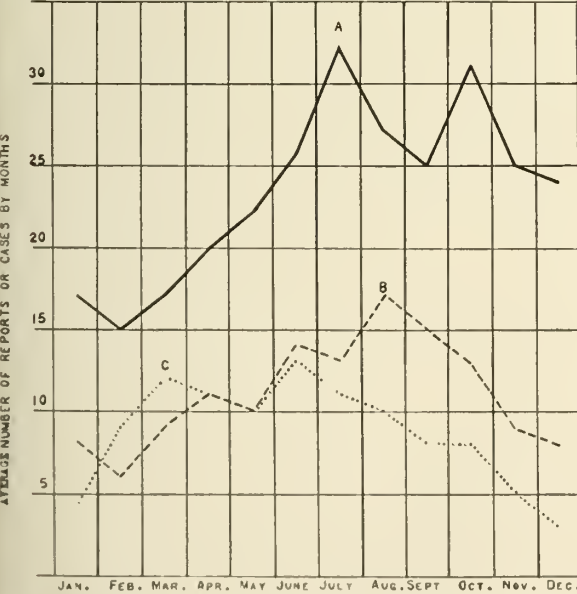
The accompanying bar diagram (Fig. 1) contains information relative to the reported prevalence of undulant fever in this state, for the period



from 1927 to 1935. The black bars represent the total number of positive agglutination tests reported from the State Hygienic Laboratories; the stippled bars indicate the number of cases on which case reports have been returned to the State Department of Health by attending physicians.

The accompanying line diagram (Fig. 2) indicates the seasonal occurrence of undulant fever in Iowa. The figures represent the average number of cases for each month, based on total reports for the past years, as stated below the diagram.

Seasonal Occurrence  
LINE DIAGRAM INDICATING SEASONAL OCCURRENCE OF  
UNDULANT FEVER IN IOWA



RURAL SANITATION PROJECT

There is evidently considerable misunderstanding in regard to the rural or community sanitation program which the State Department of Health and the United States Public Health Service are jointly sponsoring as a WPA project in a number of Iowa counties.

The program consists of replacing insanitary toilets with approved type fly and insect-proof structures. Labor is furnished by WPA and material is furnished by the owner. This is the only WPA project wherein relief labor is permitted to be used on private property, not for the purpose of improving property but for the purpose of protecting community health. This program is in operation in forty-one states, and one state has constructed over 100,000 of these sanitary units.

Typhoid fever, dysentery and enteritis have long been known to be fly-borne. Flies are carriers of these germs from excreta to food. Complete elimination of carriers, elimination of flies, or prevention of flies having contact with excreta will break the chain of disease transmission. Of course efforts should be made to control all three links; however, the latter can be most economically and completely controlled by the simple expedient of constructing sanitary toilets where sewers are not available.

In a survey of town and village housing carried out by the Agricultural Experiment Station of the Iowa State College in 1935, small unsewered villages in ten typical counties showed that 86 per cent of the families were using "unimproved outdoor toilets."

Within the past two years a serious outbreak of typhoid fever occurred in one of Iowa's large cities. The epidemic was traced to raw milk, and furthermore to flies carrying infection to milk utensils from a filthy privy pit used by demonstrated typhoid carriers. Thus one insanitary privy several miles away from a sewered city resulted in sickness among twenty-five city dwellers.

Every sewered city and town in Iowa has a fringe of unsewered homes at the outskirts. Milk and vegetables from acreages and farms are consumed by all urban dwellers in Iowa. Therefore the safe disposal of excreta in unsewered areas becomes the concern of all people whether of urban or rural residence, and it is on this premise that the State Department of Health and the United States Public Health Service have undertaken this program. It is not expected that this program will eliminate all insanitary toilets in any community. It is hoped, however, that this pro-

(Continued on page 274)



# The JOURNAL of the Iowa State Medical Society

ISSUED MONTHLY

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### TREATMENT OF DIABETES MELLITUS

Prior to 1922 when Banting and Best announced the discovery of insulin, the successful treatment of diabetes mellitus depended solely upon dietary management. Because of its specificity and the remarkable results obtained through its use insulin not only commanded the spotlight of attention in treatment, but encouraged investigation into other glandular extracts and products of similar character. Each year has seen a number of new preparations proposed, but none has demonstrated merits equalling or superior to insulin. However, the search continues, and it is the hope of investigators that research will give to medicine a preparation with the specificity of insulin, but one with a more prolonged and even action, and one active on oral administrations. Progress appears to have been made in the introduction for experimental purposes of a substance known as "protamine insulin." This substance was first described by Dr. H. C. Hagedorn, who, working with his associates in the Steno Memorial Hospital in Copenhagen, Denmark, developed the new preparation by the addition of protamine to ordinary or regular insulin. In the originator's hands this preparation has in selected cases given highly desirable results in that it has demonstrated a markedly prolonged action, and through its use a more constant blood sugar level has been obtained in severe diabetes. The preparation is not available for general use, but its discoverer has made available through Eli Lilly and Company, limited amounts for clinical trial in the hands of recognized experts in diabetic management.

Elsewhere in this issue of the JOURNAL appears an article by Winnett showing the results of the clinical action of this new drug as employed by him in the management of severe diabetes. In the evaluation of a new drug many clinical investiga-

tions should be made before the drug is offered for general use. It is only after many clinical trials by competent physicians working independently, that sufficient data are obtained to establish the merits, the dangers, or contraindications of the drug and provide insight into the proper avenues for merchandising. Animal experimentation alone is not enough to justify the use of such a drug on human patients except under conditions critically controlled, since the experimental animal of the laboratory, while approximating, can never entirely parallel, human reactions. Further individual idiosyncrasies exist, the presence of which can only be determined by painstaking testing and observation.

The new drug, protamine, is an amorphous basic substance, rich in nitrogen, found in the spermatic fluid of the salmon. On decomposition it yields arginine, lysin and histidine. As a result of the addition of protamine to regular insulin a compound is formed which is slightly soluble in body serum. After the injection subcutaneously and the breakdown of the substance in the tissues, insulin is liberated. This breakdown of protamine insulin occurs at a relatively slow rate, which results in the effective radical-insulin being absorbed into the blood stream more slowly than ordinary insulin, thus producing a sugar lowering effect that is more delayed and longer than that of regular insulin.

In the report by Winnett it is interesting to observe that this new drug has been employed in at least one instance on a patient with a mild type of diabetes, although its originator, Hagedorn, has suggested its use only in severe cases. It would seem entirely possible that a further study of this preparation might demonstrate indications for its use not only in the severe case, in which the problem of maintaining the constant blood sugar level is attended by many difficulties, but also in those milder cases where the use of a drug of a more sustained action would prove of great convenience to the patient. From this preliminary report as well as other reports it would seem that a marked advance had been made in diabetic therapy, particularly in those patients whose blood sugar content is unsatisfactorily controlled by regular insulin, or in those patients who show wide fluctuation in their blood sugar levels, with resulting insulin reaction when using the older preparation. Insulin reactions do occur with the use of protamine insulin, but it is hoped that its use will prevent those severe or fatal reactions seen with the older preparation, and that it may reduce the frequency with which insulin reactions are observed. It would also appear hope is justified that through the aid of this new preparation studies in early

hypoglycemia may be made which may lead to a more satisfactory and effective treatment by the patients themselves when this condition threatens them and before unconsciousness develops.

We would emphasize the fact that protamine insulin is still in the experimental stage. It has disadvantages and has not proved to be without danger. Because of these facts the Toronto Committee, Dr. Hagedorn and the Eli Lilly Company are to be commended on the thorough investigation they are making of this preparation before offering it to the medical profession through commercial channels.

### THE PHYSICIAN VIEWS WAR

The threat of war hangs constantly about us. The morning newspaper declares a new European crisis. The far east makes news by its aggressive militarism. Nations look with suspicion upon their neighbors, and the Utopia of world peace seems far away. Campaigns are waged for greater military preparedness and equally vigorous campaigns sponsored for the reduction of armament. Dozens of plans for the elimination of war are proposed, only to be discarded, apparently for the reason that man has not developed a plan of civilization which demands the settlement of personal or national difficulties except by war. We read and hear much concerning the biologic urge for combat, a primitive motive which prompts military display and conflict. Even more strongly stressed are the economic and social demands for war, particularly those wars of aggression or expansion. History continues its record of wars in never ending succession; but need this challenge continue?

Three hopeful avenues for curbing war present themselves today, each holding promise because of the manifestly unselfish motive promoting the reaction, and because of the numerical strength and economic importance of its sponsors. The veterans of the World War are recognized as a powerful political body, and their demands have been heard in Washington. These veterans are taking a positive attitude against war and have demanded first, legislation requiring the conscription of capital as well as of men in case of war, and second, the elimination of profits from war material. Human lives may be reckoned of little value, but dollars are ever dear and men will tolerate insult and even injury rather than jeopardize personal wealth.

The student masses in our high schools, colleges and universities, will always wield a tremendous influence in world affairs, not only because of their numerical strength and their position in education, but also because of the recognized fact that the leaders of tomorrow are re-

cruited from the students of today. Within the month student bodies throughout the country have indulged in public demonstrations against war. More significant, however, in its final effect, is the rapidly growing movement, which in both its title and plan, reveals the folly of war in subtle but derisive humor. Originating in Princeton University, the organization of "The Veterans of Future Wars" has spread like wildfire through other institutions until today they recognize 234 chartered posts, all advocating the abolition of war through good-humored but effective cynicism.

Finally, we must recognize that the prosecution of war depends upon men and money, and that these are obtainable only when public judgment is lost in hysterical fervor. Stability in the emotional poise of a people will prevent war. It would seem particularly significant, then, that during the year psychiatrists of the world have organized against war, enlisting some thirty nations through 339 charter members in a "Committee on War Prophylaxis." These scientific leaders believe and prophecy that civilization may be surrendered in the event of another great war, and point out that physicians, because of their insight into the problems of behavior, are in a particularly unique position to study the problem of human reactions which predicate war and offer methods for their correction. They recognize that, "war means the annihilation of mankind by technical science"; but they further logically contend that technical science properly directed can and will prevent wars.

To bring these thoughts to the consideration of diplomats and statesmen, this committee has directed an official statement to the officials of all nations, particularly the European countries where the threat of war is most imminent. This document calls attention to the fact that the unconscious desire to give rein to the primitive instinct, not only without punishment but even with reward, furthers in a great measure the preparedness for war; and that international organization is now sufficiently advanced to enable statesmen to prevent war by concerted action if the motivated reasons for wars are studied and understood. The committee urges that this machinery be further developed, if necessary, to the end that peace measures receive the same financial support and study now given to the preparation for and prosecution of war.

More significant, perhaps, than the actual text of the committee's statement, is the organization itself, since it signifies a willingness on the part of these scientists to submerge their nationalism in a concerted movement toward world peace. Physicians and scientists everywhere recognize a bond of fraternity, created by their mutual inter-



est in science, which transcends racial or national prejudices and traditional hatred. Such an organization may well form the nucleus for a larger and stronger one where all scientists may be united in this common cause.

Science is international, and those who love and cherish its ideals constitute a brotherhood which may hold the control of war in its province through a universal fraternity.

#### THE COPELAND BILL

On several occasions we have editorially discussed legislation introduced into Congress designed to supplant and render more effective the Federal Food and Drug Act of 1906. While several bills were introduced into the Seventy-third Congress, that most favorably considered was one introduced by Senator Copeland of New York, which, however, died with the adjournment of Congress in 1934. The new Congress received a new Copeland Bill which passed the Senate in May of 1935. This new bill was intended to preserve the essential protective legislation of the original measure, but to eliminate certain less important and more controversial provisions, and is defined as "An act to prevent the adulteration, misbranding, and false advertising of food, drugs, devices, and cosmetics, interstate and other commerce subject to the jurisdiction of the United States, for the purposes of safeguarding the public health, preventing deceit upon the purchasing public, and for other purposes." This revised Copeland Bill is now before the Committee on Interstate and Foreign Commerce of the House of Representatives and Washington observers believe that the bill will be brought to early consideration by the House.

While the Copeland Bill was patently devised to strengthen the Federal Food and Drug Act, current critical analyses of the greatly modified Copeland Bill indicate that much of its original strength has been lost and that the bill in its present form, while presenting many commendable features, would not serve the public adequately and would permit practices defeating its avowed purpose. President Roosevelt in his message to Congress a few months ago stated, "A measure is needed which will extend the control formerly applicable to labels, to advertising also, which will extend protection to the trade in cosmetics, which will provide for a cooperative measure of setting standards, for a system of inspection and enforcement, to reassure customers grown hesitant and doubtful, and which will provide for a necessary flexibility in administration as products and conditions change."

In a measure this end has been accomplished in

the revised bill, although certain vital sections have been weakened by alteration in wording which permits, if not invites, evasion. The bill definitely penalizes the misbranding of drugs and devices or the use of false or misleading advertising. To establish the honesty of the label or advertisement the bill fixes a standard based on "medical opinion." Medical opinion is defined to mean the opinion of "the legalized profession of the healing arts." Citing the opinion of the Senate Committee on Commerce, the Bureau of Legal Medicine and Legislation of the American Medical Association states, "The term medical opinion seems to mean, then, whenever it appears in the Copeland Bill, the opinions not only of doctors of medicine and of dentists, pharmacists and registered nurses, but the opinions also of chiropractors, osteopaths, naturopaths, optometrists, chiropodists and midwives, and in some states of other practitioners, according as one or another class is licensed by the laws of the state."

What a maze in which to seek the truth, and how simple it would be for an unscrupulous manufacturer to influence the scientific opinion of those whose bias or prejudice colored their judgments. Statements obtained in this manner and submitted as medical opinion might easily mislead the lay jury, even though that jury was superior in intelligence.

Of equal importance in establishing the validity of the claim of a drug or device on the label or in advertising is "substantial and reliable scientific facts or opinions." The source of scientific facts or opinions is interpreted in the first case as being the opinion of pharmacologists, physiologists and toxicologists, while in the latter, the opinion of any "numerically significant group." What is a numerically significant group in any particular state? Would a handful of testimonials represent a numerically significant group? It was once universally believed that the world was flat. Did this numerically significant group prove this contention? We are of the opinion that a numerically significant group is much more effective in creating political positions, for example, than it is in establishing scientific facts. Conceive, if you can, of a conviction occurring as a violation of this important clause of the bill. We then find that penalties can be established only after the offender has been first, served notice; second, given a hearing by a designated officer of the Secretary of Agriculture; third, given a second hearing if the offender can show cause; fourth, for penalties it must be proved that the offender has not acted "in good faith;" and fifth, that he wilfully and knowingly disseminated untrue information con-

(Continued on page 278)

# SPEAKERS BUREAU ACTIVITIES

## POSTGRADUATE COURSES

The Speakers Bureau Committee presented only two postgraduate courses during the spring months of 1936, since inclement weather conditions led to cancellation of the other courses which had been planned. A course in medicine and surgery was presented at Fairfield by the faculty of the College of Medicine of the State University of Iowa, and a laboratory course of the type presented a year ago was given at Creston by outstanding physicians in the state. Interest in both courses was good, and it was felt that they were worthwhile. Both courses were shorter than usual. It was decided at the last meeting of the Speakers Bureau Committee that ten weeks might be too long a period, and as a result the experiment of shorter courses was carried out this spring. It is too early as yet to state whether or not the change will be permanent.

Because only two courses were given this spring, a greater number will be given next fall, and the committee will begin work on these shortly after the first of June. Any community desiring a course is asked to write to the central office, giving an idea of the type of instruction preferred. The committee will then schedule the locations for the courses so that as much of the state as possible may be covered. It is the aim of the committee to cover the entire state once a year, insofar as possible, and for that reason care must be taken in planning the courses, and an early start is desirable. Please write to the central office by the middle of June if your community is interested in having a course.

## LAY TALKS

Since the first of January, the Speakers Bureau Committee, through the cooperation of many physicians in the state, has given eighty-five talks to Parent-Teacher Associations, Women's Clubs, service clubs and similar groups. The committee appreciates the great kindness of the men who have helped with this work, and believes that the result has been most gratifying. It has received excellent reports regarding the speakers, and many letters of thanks from the various organizations. Through the medium of these eighty-five talks, organized medicine has been able to further community health, and to bring to these communities consciousness of the fact that the profession always stands ready to help in health education.

During the summer months, the Parent-Teacher Associations and the Women's Clubs will be inactive, but the service clubs and the Chambers of Commerce will hold meetings as usual. The Speakers Bureau will be glad to send speakers to any of these groups. Every physician in the state is urged to communicate with the central office if any organization in his community wishes a speaker on health matters.

## RADIO TALKS

### Iowa State Medical Society

WOI—Wednesdays at 4:30 p. m.

WSUI—Mondays at 8:00 p. m.

- May 6 Mother's Day—Mrs. A. Laura Campbell.
- May 13 Undulant Fever in Iowa—L. R. Woodward, M.D.
- May 20 Death on the Highways—Mrs. Alex Miller, Secretary of State.
- May 27 Present Status of Knowledge About Vitamins—Walter Cary, M.D.
- June 3 Vacations—Channing G. Smith, M.D.

### American Medical Association

Broadcasts weekly through the Red Network on Tuesdays at 3:00 p. m. Central Standard Time. WHO carries the program. Special radio programs will be broadcast from Kansas City during the week of the annual session.

### National Broadcasting Company

The following programs will be delivered over a network of the National Broadcasting Company:

May 11, 4:30 p. m.—Nutrition and the Future of Man, by Dr. James S. McLester, President of the American Medical Association. Fifteen minutes.

May 12, 4:00 p. m.—Medicine Marching Forward. The regular dramatized program Your Health (originating in Chicago), based on papers or exhibits presented at the convention. Thirty minutes.

May 13, 12:00 noon—An interview about the Scientific Exhibit with Dr. Morris Fishbein. Fifteen minutes.

### Columbia Broadcasting System

The following programs will be broadcast over a network of the Columbia Broadcasting System:

May 11, 1:30 p. m.—An interview with one or more distinguished foreign visitors by Dr. Morris Fishbein. Subject to be announced. Fifteen minutes.

May 15, 2:00 p. m.—A news broadcast outlining the main events of the convention. Dr. W. W. Bauer. Fifteen minutes.

May 15, 8:45 p. m.—Medicine Yesterday and Today. A dramatized program (originating in Chicago), based on papers or exhibits presented at the convention. Thirty minutes.

The hour given is Central Standard Time.



# WOMAN'S AUXILIARY NEWS

*Edited by the Press and Publicity Committee*

Mrs. DEAN W. HARMAN, *Chairman*, Glenwood, Iowa

## FINANCE

A seemingly dry topic, "Finance," and yet I wager three-fourths of the members of the Auxiliary are vitally interested in this same topic at home and in their husbands' offices, because it plays such a large part in almost every act of one's every day life.

There are times when the amount of money spent by many lay women's organizations is appalling. I realize from contact in these groups that women today are studying all sorts of things, and medicine in one form or another seems to come in for more than its share of study. I was rather pleased before the holidays, to have the chairman of the program committee of a club in my state, write asking me to help one of the members get material for a paper on "Preventive Medicine." I contacted the office of the State Medical Society, knowing that the high schools in this territory were listed for the debate on socialized medicine, and I also mailed some of Dr. Bauer's material. Three times since I have been approached by this same club of fifty women to help with material. One topic was "Medical Superstitions," one a paper on "Cancer," and just last week came a call for help on "Medical Fads." I am sure this group of women has enjoyed Dr. Fishbein's books on the last topic. Of course not every club goes in for the study of medical subjects in such a large way.

But the moral of all this happens to be this. How lucky that this group of women knew an Auxiliary member and remembered that they could call on her for the correct kind of material in their time of need. But what, you will say, has all this to do with Auxiliary finances. Women everywhere are interested in our problems. Much of the money of the Auxiliary goes to help educate our own members, and also the general public, in the many topics they are wondering about. Right now Auxiliaries all over the country should invest in the correct idea of presenting the topic "Cancer" because the general and state federations of women's clubs are stressing this as one of their courses of study, under their health chairman, Mrs. Carl Illig, Jr., of Onset, Massachusetts. So get your lines busy with Mrs. Holcombe, and with Dr. Bauer's secretary, and have a supply of the very best reading material to be had on this subject. Always keep a few copies in your handbag, and in the fly leaf of your brain.

Mrs. James Blake.

## STATE AUXILIARY OFFICERS FOR 1936

Newly elected officers of the Woman's Auxiliary to the Iowa State Medical Society, who were named at the annual session held in Des Moines, April 29 and 30 and May 1, include:

President—Mrs. Clyde A. Boice, Washington.

President-Elect—Mrs. S. E. Lincoln, Des Moines.

First Vice President—Mrs. S. D. Maiden, Council Bluffs.

Second Vice President—Mrs. T. E. Davidson, Mason City.

Third Vice President—Mrs. A. L. Bryan, Muscatine.

Fourth Vice President—Mrs. C. L. Putnam, Holstein.

Secretary—Mrs. Harold A. Spilman, Ottumwa.

Treasurer—Mrs. William R. Hornaday, Des Moines.

Director—Mrs. P. W. Beckman, Perry.

## Pottawattamie County

The Woman's Auxiliary to the Pottawattamie County Medical Society met for dinner and a meeting Monday, March 16. It was decided that the Auxiliary would buy six yearly subscriptions to *Hygeia*, placing three of them in Council Bluffs schools, and three in schools in the county not already supplied. After the business meeting, Mrs. S. D. Maiden presented a paper on "The Social Security Act," paying special attention to the part pertaining to health. A round table discussion followed.

## Dubuque County

Wives of members of the Dubuque County Medical Society met recently and organized an auxiliary to the County Medical Society. Officers of the new organization are: Mrs. Walter J. Connell of Dubuque, president; Mrs. W. R. Langford of Epworth, vice president; and Mrs. Laurence E. Cooley, of Dubuque, secretary and treasurer. Addresses at the organizational meeting were presented by Mrs. M. C. Hennessey of Council Bluffs, president of the state auxiliary, and Mrs. Clyde A. Boice of Washington, president-elect of the state auxiliary.

## SOCIETY PROCEEDINGS

### Buchanan County

Dr. Robert A. Stewart and his staff at the Independence State Hospital were hosts to the Buchanan County Medical Society at the quarterly meeting held Thursday, March 19. Dinner was served at six-thirty in the chapel, after which F. R. Peterson, M.D., of Iowa City, addressed the group on Surgery of the Thyroid. His paper and the discussion which followed was enjoyed by everyone. The next meeting will be held early in June.

N. L. Hersey, M.D., Secretary

### Cass County

The Cass County Medical Society met Friday, April 17, at the Hotel Pullman in Atlantic, where a six-thirty dinner was followed by a paper on The Injection Treatment of Varicose Veins and Hemorrhoids, read by Roscoe Needles, M.D., of Anita.

### Clay County

Philip A. Scott, M.D., of Emmetsburg, furnished the scientific program for the Clay County Medical Society when that organization met Tuesday, April 7, at the Hotel Tangney in Spencer. Dr. Scott spoke on Practical Aspects of Cystoscopic Examinations in Relation to the General Practitioner.

### Dallas-Guthrie Society

The regular monthly meeting of the Dallas-Guthrie Medical Society was held in Panora, Thursday, April 16. After the noon luncheon A. G. Felter, M.D., of Van Meter, read a paper on Some Factors in the Management of the Failing Heart, illustrating his paper with motion pictures on the mechanism of the heart beat. K. W. Diddy, M.D., of Perry, addressed the group on Coronary Calculus.

S. J. Brown, M.D., Secretary

### Des Moines County

Tuesday, April 14, members of the Des Moines County Medical Society met in Burlington, for their regular monthly session. Fred Hambrecht, M.D., of Galesburg, Illinois, presented the address of the evening, speaking on Subphrenic Abscess.

### Jasper County

Frank A. Ely, M.D., of Des Moines, spoke before the Jasper County Medical Society, at the meeting held in Newton, Tuesday, April 7, on Eye Symptoms in Neurology.

### Linn County

The regular meeting of the Linn County Medical Society was held Friday, May 8, at the Hotel Montrose in Cedar Rapids. Guest speaker for the occasion

was Hugh H. Young, M.D., of the Brady Urological Institute of Baltimore, Maryland. Dr. Young's paper on Urologic Questions of General Interest, was discussed by N. G. Alcock, M.D., of Iowa City; Clifford W. Losh, M.D., of Des Moines; and Jennings Crawford, M.D., of Cedar Rapids. Another feature of the meeting was a paper on Classification of Insanity, presented by Frank Skinner, M.D., of Marion. The next meeting of the society will be held in September, after the summer recess.

### Marion County

The following program was presented before the Marion County Medical Society at its meeting held in Pella, Friday, April 10: Case Report, with remarks concerning postmortem findings, E. C. McClure, M.D., of Bussey; Some Considerations of Hypotension, C. S. Cornell, M.D., of Knoxville; and Demonstrations of Tuberculin Skin Tests, John H. Peck, M.D., of Des Moines.

### Pocahontas County

The Pocahontas County Medical Society met in regular session Friday, April 17, in Pocahontas. Lester Leserman, M.D., of Rolfe, read a paper on Some Practical Uses of Convalescent Human Sera. A business meeting followed the scientific program, during which a revision of the fee bill was discussed.

B. A. Smillie, M.D., Secretary

### Pottawattamie County

Vilray Papin Blair, M.D., of St. Louis, Missouri, was guest speaker for the Pottawattamie County Medical Society when that organization met in Council Bluffs, Monday, April 20. Dr. Blair spoke on Correction of Various Types of Facial Deformities. Case presentations were given as follows: Complicating Tumors of the Abdomen, M. C. Hennessy, M.D.; Ovarian Cyst, J. P. Cogley, M.D.; and Congenital Dextrocardia, G. C. McCutchan, M.D.

The next meeting will be held Monday, May 25, with Walter D. Abbott, M.D., of Des Moines, speaking on Presacral Neurectomy in the Treatment of Certain Pelvic, Bladder and Bowel Disorders.

Fred H. Beaumont, M.D., Secretary

### Sac County

The Sac County Medical Society met in regular session, Monday, April 13, in Odebolt. The dinner and business meetings were followed by an open meeting held at the high school to which the parent-teachers association had been invited. A good crowd was present in spite of adverse weather conditions. Two addresses were given, the first on Infectious Diseases, by Emmett McMahon, M.D., assistant profes-



sor of medicine, Creighton University School of Medicine, Omaha; and the second on Fatigue in Children, by J. Harry Murphy, M.D., associate professor of pediatrics, Creighton University School of Medicine, Omaha.

W. E. Hart, M.D., Secretary

#### Shelby County

Two Council Bluffs physicians furnished the scientific program for the Shelby County Medical Society meeting held Tuesday, April 21, in Harlan. A. A. Johnson, M.D., discussed Hypothyroidism, and M. E. O'Keefe, M.D., spoke on Goiter.

A. L. Nielson, M.D., Secretary

#### Woodbury County

The program for the Woodbury County Medical Society meeting held Wednesday, April 22, at the West Hotel in Sioux City, consisted of a symposium on undulant fever. A general discussion was entered into by the members, after the following addresses by guest speakers: Laboratory Diagnosis of Malta Fever and the Use of Brucellin in Treatment, I. H. Borts, M.D., of Iowa City; and Undulant Fever in Iowa, Carl F. Jordan, M.D., of Des Moines.

On Tuesday, May 26, the Woodbury County Medical Society will honor Dr. William Jepson on the completion of fifty years of practice. Dr. Kellogg Speed of Chicago will present the scientific portion of the program, and the felicitations to Dr. Jepson will be given by former associates in the faculty at the University of Iowa and others. It is hoped that all friends of Dr. Jepson will make an effort to be present even though they do not receive a personal invitation from the county society.

R. N. Larimer, M.D., Secretary

#### Iowa Clinical Surgical Society

The annual meeting of the Iowa Clinical Surgical Society was held Saturday, April 25, in Sioux City. Dr. R. Q. Rowse of Sioux City was elected president of the organization, and Dr. E. A. Jenkinson, also of Sioux City, was re-elected secretary, a position he has held for ten years.

#### Southwestern Iowa Postgraduate Medical Society

Tuesday, March 31, members of the Southwestern Iowa Postgraduate Medical Society convened in Clarinda for their regular monthly meeting. Herbert J. Rinkel, M.D., of Kansas City, was guest speaker for the scientific portion of the program, and spoke on The Food Factor in Allergic Diseases, with special reference to eczema, acne, and respiratory allergy. His lecture was illustrated with lantern slides. Dinner was served at the Clarinda Country Club, after which Mr. Tom Collins, literary editor of the Kansas City *Journal-Post*, presented the entertaining address of the evening.

Agnes Ross Wilder, M.D., Secretary

#### KEOKUK MEDICAL COLLEGE REUNION

The reunion of graduates of the old Keokuk Medical College of Physicians and Surgeons will be held at Keokuk, Iowa, Monday, June 15, 1936. Registration at the Hotel Iowa. This includes all graduates of medicine, dentistry, pharmacy, and nursing.

The last reunion was held in 1924 and was attended by over 400 graduates. All graduates are urged to be present. Additional information may be secured by writing to Dr. William Rankin, Keokuk, Iowa.

#### PERSONAL MENTION

Dr. Ernest E. Shaw, of Indianola, spoke on "Socialized Medicine and Health Insurance" at the city wide forum held in Indianola Tuesday, March 21.

Dr. Reas Anneberg, son of Dr. A. R. Anneberg, has returned to Carroll where he will be associated with Drs. Anneberg and Martin. He will specialize in diseases of the eye, ear, nose and throat. Dr. Anneberg was graduated from the University of Iowa College of Medicine in 1932, and comes direct to Carroll from St. Louis, where he has been doing postgraduate work at the Barnes Hospital.

Dr. Frank M. Fuller, of Keokuk, will speak before students of Parsons College in Fairfield Monday, May 18. His address is entitled "The Romance of the Blood." Dr. Fuller himself is a Parsons College alumnus.

Dr. Philip A. Scott, formerly of Emmetsburg, has moved to Spirit Lake, where he will be associated with Dr. Don Rodawig in the Spirit Lake Hospital.

#### DEATH NOTICES

Farrell, Vincent A., of Mason City, aged sixty, died April 6, from an embolism resulting from an injury suffered during a fall three weeks ago. He was graduated in 1901 from Northwestern University Medical School, and at the time of his death was a member of the Cerro Gordo County Medical Society.

Haecker, Lewis Edward, of Hampton, aged seventy-three, died April 18, after several weeks' illness with heart disease. He was graduated in 1894 from Rush Medical College, and at the time of his death was a member of the Franklin County Medical Society.

Long, Walter Klingeman, of Hampton, aged sixty, died April 3, of pneumonia and complications. He was graduated in 1906 from Northwestern University Medical School and at the time of his death was a member of the Franklin County Medical Society.

# HISTORY OF MEDICINE IN IOWA

*Edited by the Historical Committee*

DR. FRANK M. FULLER, Keokuk

DR. TOM B. THROCKMORTON, Des Moines

DR. JOHN T. McCLINTOCK, Iowa City

DR. WALTER L. BIERRING, Des Moines

DR. PAUL W. VAN METRE, Rockwell City

DR. WILLIAM JEPSON, Sioux City

## History of Drake University College of Medicine\*

FERDINAND J. SMITH, B.S., M.D., Milford, Iowa

(Continued from last month)

The Junior Dean returned to Iowa and removed to Des Moines in time for the opening of the fall term. Previously he had obtained the services of Dr. H. J. H. Hoeve, a graduate of the College of Physicians and Surgeons, Chicago, for the department of anatomy. He became the first full time teacher of anatomy on a salary basis. The department of bacteriology was placed in charge of Prof. L. W. Ross, of the biology department (he was the Des Moines collaborating bacteriologist for the State Health Laboratory). The department of medical chemistry was taken over by Dr. Smith. These were the only full time, salaried teachers in 1904. In the years immediately following, additions were made to the teaching staff of the Junior Medical College until all departments were manned. Dr. Alexander S. Beggs took over the department of pathology, histology and embryology; Dr. W. S. Mendenhall, that of physiology and pharmacology; Dr. Paul E. Lineback became assistant in histology and anatomy. These were all full time, salaried teachers. The new faculty met together and organized. They appointed each Friday evening as a time for conferring together, when each departmental head should report on any new and noteworthy developments in his department.

In the year 1909 the Carnegie Foundation undertook an inspection of all the medical colleges of the United States and Canada, and also of all schools that claimed to teach any form of a healing art. The purpose of the inspection was to determine the qualifications of the many colleges existing at that time and to classify them

according to their ability to prepare young men and women for entrance into the medical profession or to practice any other kind of healing art. Dr. Abraham Flexner was appointed to make this investigation. Dr. Flexner arrived at Drake College of Medicine in April, and, in the absence of Dean Fairchild, was accompanied about the medical school by Dean Smith. The Junior College was first visited and all of the laboratories were investigated and the work being done in them was observed. He met all of the heads of departments. From here Dr. Flexner was taken to the Methodist Hospital<sup>14</sup> and immediately after to the Mercy Hospital. In one of the hospitals he was able to be present at a surgical clinic. As the Salvation Army Rescue Home was a considerable distance from the heart of the city, he did not visit it, but interviewed instead the head of the obstetric department for the information he needed. The end of the tour was the Senior Medical Building, which he inspected thoroughly. He was shown the dispensary service, which had but recently been put into operation.<sup>15</sup> He saw the medical library, the auditorium and other rooms.

A little later in the same spring the Council on Medical Education of the American Medical Association, through its executive secretary, Dr. N. P. Colwell, also investigated our school. The next year the medical faculty and the university authorities had the satisfaction of finding the school reported among the class "A" colleges.

In this same year the president of the Keokuk Medical College, Dr. George F. Jenkins, realized



that the time was soon coming when it would be necessary for the faculty of this college to meet requirements for greatly increased laboratory facilities and full time, salaried instructors. Without an ample endowment, this could not be done. The faculty was called together by Dr. Jenkins and after mature consideration it was decided to close the school before it should lose caste. It was decided, further, to negotiate with the Drake College of Medicine for a merger of the two institutions, all of the movable equipment to be taken over by the Des Moines institution. Drake was also to take over the alumni list, so that Keokuk graduates should have an Alma Mater by adoption, which would give them the feeling that the old Keokuk College was still living and on the other hand give the Drake College of Medicine additional hope and courage. The merger was completed late in September, 1908.

(For a history of events leading up to the formation of the Rock Island and thereafter the Davenport Medical College, which subsequently became the Keokuk Medical College, see a later compilation, to be published after the present history.)

In the fall of 1909, the late Dr. E. E. Dorr arranged for a meeting between Drs. Walter L. Bierring and Henry Albert, of the State University, and President Hill M. Bell and Dean Smith. There was a feeling at that time that the medical college belonged in Des Moines where there was much the largest population of any city in the state and where there was every indication of a considerable growth for years to come. In addition, Des Moines already had a number of large hospitals where clinical material was abundant. The two visiting physicians were offered the positions of head of the department of medicine and clinical medicine, and of pathology and bacteriology, respectively. After a few weeks Dr. Bierring accepted the position as head of the department of medicine. He requested that Dr. John H. Peck, his assistant, also be retained, as assistant professor of medicine and director of the dispensary service. This was granted, and they were asked to report for the beginning of the fall term of 1910.

In the latter part of October, 1909, Dr. D. S. Fairchild handed in his resignation as Dean of the Medical Department, to go into effect at once. He had served the college continuously for twenty-five years. His home was in Clinton, as were his office and his headquarters as Division Surgeon of the Chicago and Northwestern Railway, and his consultation practice was very large. His resignation was regretfully accepted.

President Bell asked the Junior Dean to take

the office, urged him to do so; but he refused, for in his opinion Dr. William W. Pearson was the logical man for the position. The president, while more than willing that Dr. Pearson should have the position, doubted very much that he would accept it. The acting dean visited Dr. Pearson and acquainted him with the president's offer and his desire that he should accept the position. He also re-inforced the president's offer as strongly as possible and then visited some of the other members of the faculty asking them to use their influence with Dr. Pearson. It took considerable pressure, for Dr. Pearson was a very busy man, but in the end he accepted, to the joy of everybody concerned.

The formal installation of Dr. Pearson was set for November 23, 1909. A three day program was arranged for the occasion.

On the afternoon of the 23rd, at three o'clock, the alumni of Keokuk College of Physicians and Surgeons and of Drake University Medical College held a joint meeting in the auditorium of the Senior Medical Building. The oldest class represented at the meeting was the 1876 class of the former college, but there was also a letter from Dr. A. A. Noyes, of Mason City, Iowa, who was from a much earlier class. He was graduated in the class of 1850 from the Upper Mississippi River Medical College, in Davenport, Iowa, the first year that this antecedent of the Keokuk college was west of the Mississippi River, and in the same class with Judge Dillon, who was graduated in medicine before he began the study of law, became an Iowa judge, then a federal judge, and finally a member of the law department of a large Eastern university. Dr. Robert L. Parker, the president of the Drake alumni, presided at the meeting. In his opening address he gave as one of the objects of the meeting the desire of the Drake alumni to meet with their newly acquired brethren, and to bid them welcome to their new Alma Mater. He suggested that this was a very good opportunity for all of the alumni, old or new, to look about and see the quality of the work done by the Drake College of Medicine, and they would see that the school deserved the support of both bodies of alumni. He spoke of the clinical advantages the large city has over the small one: there were two large general hospitals in Des Moines, and there were others not so large, but also offering all kinds of help to the school. The Salvation Army Rescue Home was a source of obstetric experience for the senior students. The beginnings of a tuberculosis hospital were also in prospect. A number of those present, amongst them some of the faculty members, made short addresses, and there was ample evidence of a spirit

of good fellowship between the old alumni of Drake and the new alumni members from the Keokuk school.

At eight o'clock the same evening Dr. Pearson's installation ceremonies were held in the Drake Auditorium on Twenty-fifth Street and University Avenue. President Bell presided. After a musical selection had been rendered, the University Chaplain, the Reverend Dr. Charles S. Medbury, offered the invocation. Immediately following, President Bell introduced to the audience Dr. John B. Deaver, of Philadelphia, Pennsylvania, who delivered an address, a portion of which is here given:

### THE MAKING OF A SURGEON

"That 'times change and we change with them' is nowhere better illustrated than in the alterations which have taken place within our own generation in the standards demanded of the medical profession and the consequent development of methods of medical education. The law of supply and demand operates strongly upon the professions as it does in the business world.

"With a rapidly growing population and one engaged largely in conquering the vast resources of the country, there was an urgent need for physicians and surgeons to keep pace with the increase in population. Circumstances and the materialistic tendency of the times permitted the upgrowth of a large number of medical schools, too often but the expression of commercial motives on the part of the founders, but partially justified by the real need for men who would devote themselves to the healing art. Many of these schools thought it necessary to teach only so-called essentials and, as usual, where this is the case, these essentials were taught very badly. Not in all cases was this condition of affairs present, but it was true in sufficient instances to lower the general professional average quite materially and retard the progress of medical education.

"Even now we are not emancipated from the poor schools with insufficient facilities whose chief object is to enable the matriculant to pass his state board examinations. Gradually, however, a new order is replacing the old. Already supply has gone beyond demand and the result is to improve the quality of the output. Opportunities for study have been increased, facilities have been improved. The tendency of the times is well illustrated by this University College of Medicine. Standing as it does, the result of successive fusions of smaller schools, it has placed medical education in this city upon a University foundation, the only proper basis for such a school at the present time. The requirements of modern medicine

have necessitated expensive laboratories and equipment and a large annual outlay for instruction. Properly conducted, a medical school is a losing institution, from a financial standpoint, and the private schools must therefore cease to exist or change their policy. The Medical School of Drake University stands on the threshold of a great opportunity. Dr. Pearson is to be congratulated upon being chosen as the man of the hour to shape its destiny. The school certainly felicitates itself upon securing a man whose character and abilities have so signally marked him for the position."

The address of Dean W. W. Pearson was then given as follows:

"We are here in the interest of Drake University, one of the greatest educational institutions of the state of Iowa; she being one of the greatest states in the Union, is deserving of our best efforts. Her citizens have just pride in her products and are looking for improvement in every line.

"The medical department has been in existence for a number of years. Many of the best equipped and most successful practitioners of this state and other states, are numbered among her graduates. They have begun their medical study in this school and have met the legal requirements. Some have realized that the medical school of the past has merely introduced them to the study and opened the way to unlimited medical literary effort. They have profited by their teaching and have continued their study until now they are in possession of a store of knowledge that serves them in fulfilling their daily duty to the sufferer in the most approved manner; the farther they have gone the more they have been impressed with the necessity of constantly adding to their store of knowledge.

"Only last year the Keokuk Medical School, one of the oldest medical institutions west of the Mississippi River, feeling the influence of the times, decided to quit, and was absorbed by our department. With the number of medical schools reduced, the remaining ones feel more keenly their responsibility and are putting forth every effort to justify their existence and merit their continuance.

"The medical profession has kept abreast of the times, but not being content with ordinary standards, it is our purpose to advance so as to be with the leaders in our noble profession. We realize that nothing but concerted and earnest effort will accomplish our purpose.

"The entrance requirements to the medical department are to be advanced. Young men applying for admission will be required to give more evidence of character, they will recognize that their entrance into the study of medicine means



much to them; they will give the subject more serious consideration than has been the case in the past. The young man applying for admission will come after serious deliberation and with a determination to become a doctor among real doctors.

"We will not only insist on qualifications acquired in literary institutions of standing, but after his admission to our school, we expect to watch his progress from year to year in his professional development, and when, in our judgment, his capability and application falls short of our requirements, he will be advised to sever his connection with us. We will know our students so well that this embarrassment will scarcely ever come to an upper classman.

"Medical education is today in a transitional period, everything is tending to great improvement. Many more earnest workers are entering the scientific study and daily publishing the results of their investigations. The demand for the practitioner with this knowledge is being heard from every quarter. Certain influences are at work that will do more to improve the physician's proficiency than have ever aided us in the past.

"Medical schools that were formerly conducted for profit, scarcely exist today. The teachers of medicine and the lawmakers, who define the requirements of the doctor, are more fully appreciating what a medical school needs in the way of equipment. The scientific laboratories and hospital wards filled with patients, are an absolute necessity.

"A certain amount of didactic work will always be required but the practical part of the training will be made prominent from year to year.

"The laws formulated by our state board are justly becoming more stringent and the citizen is being educated to appreciate it. The leaders in the profession are setting a pace that must be maintained, and those members who are disposed to lag are beginning to feel the loneliness of their position. Incentive is necessary to urge us on to better efforts. This is increasing from year to year with the development of our country. The air of Des Moines is full of it and men are appearing in our midst to control and properly direct it. Competition in the profession of medicine is as strong a factor to higher attainment as it is in ordinary business life.

"We of the medical profession of Iowa are greatly interested in our calling and look to the department of the State University and that of Drake University to work in conjunction with the State Board of Medical Examiners to see to it that the practitioners of this great state rank with the best of any land.

"I feel honored to have been selected as the head of this department of Drake University, the members of whose faculty represent the best in it, and I am proud to call them my friends.

"I sincerely promise that my one purpose and my best efforts will be devoted to the advancement of the interests of the profession, and the execution of the wishes of the faculty.

"If, in the years to come, I hear it said that the doctor educated in the Department of Medicine of Drake University takes rank with the best, I will feel that our efforts have been rewarded."

(To be continued)

14. Bulletin No. 4, of the Carnegie Foundation: "Medical Education in the United States and Canada," p. 222: "Laboratory facilities (at Drake College of Medicine): Modest laboratories, whose condition speaks well for the conscientiousness of those in charge, are provided for chemistry, anatomy, pathology, and bacteriology. The provision for physiology is somewhat more slender."

15. Bulletin No. 4 of the Carnegie Foundation: "Medical Education in the United States and Canada," p. 221, footnote: "A few institutions possess small, moderately well equipped dispensaries, the conduct of which indicates a conscientious desire to do the best possible under the circumstances. Creditable examples are the dispensary of Drake University (Des Moines, Iowa)" and others.

16. Bulletin No. 4 of the Carnegie Foundation: "Medical Education in the United States and Canada," p. 222, footnote: "As this report goes to press, it is announced that a fund of \$100,000 had been subscribed with which 'to improve the school.'" (Correction by Dean Smith: Actually \$150,000 was subscribed.)

## RURAL SANITATION PROJECT

(Continued from page 263)

gram will effectively demonstrate the value of sanitary toilets and that the effect of such demonstration in improved sanitation will carry far beyond the life of the present WPA project.

The mere mention of an outdoor privy elicits chuckles and smiles from most people, but to the victim of intestinal disease an insanitary privy is no laughing matter. The State Department of Health offers no apology for the program which it is sponsoring because it believes the program is on a sound public health basis and will pay big public health dividends if carried out to its ultimate completion.

### PREVALENCE OF DISEASE

	Mar. '36	Feb. '36	Mar. '35	Most Cases Reported From
Diphtheria .....	46	40	40	(For State)
Scarlet Fever .....	978	627	367	Pottawattamie, Scott, Woodbury
Typhoid Fever.....	10	15	15	Pottawattamie, Black Hawk
Smallpox .....	78	59	9	Woodbury
Measles .....	12	38	5509	Cass
Whooping Cough ...	58	38	60	Lee, Linn
Cerebrospinal				
Meningitis .....	13	20	8	Polk, Guthrie
Chickenpox .....	227	203	233	Dubuque, Polk
Mumps .....	1062	905	689	Lee, Black Hawk
Poliomyelitis .....	1	0	1	Polk
Tuberculosis .....	28	15	36	(For State)
Undulant Fever ....	4	6	7	(For State)
Syphilis .....	76	128	121	(For State)
Gonorrhea .....	106	99	140	(For State)

# THE JOURNAL BOOK SHELF

## BOOKS RECEIVED

**ABORTION, SPONTANEOUS AND INDUCED, MEDICAL AND SOCIAL ASPECTS**—By Frederick J. Taussig, M.D., professor of clinical obstetrics and clinical gynecology, Washington University School of Medicine, St. Louis. C. V. Mosby Company, St. Louis, 1936. Price, \$7.50.

**BASAL METABOLISM IN HEALTH AND DISEASE**—By Eugene F. DuBois, M.D., medical director, Russell Sage Institute of Pathology. Third edition, thoroughly revised, illustrated with 98 engravings. Lea and Febiger, Philadelphia, 1936. Price, \$5.00.

**BEWILDERED PATIENT**—By Marian S. Newcomer, M.D. Hale, Cushman & Flint, Boston and New York, 1936. Price, \$1.75.

**DENTAL INFECTION AND SYSTEMIC DISEASE**—By Russell L. Haden, M.D., chief of the medical division, Cleveland Clinic, Cleveland. Second edition. Illustrated with 63 engravings. Lea and Febiger, Philadelphia, 1936. Price, \$2.50.

**EXAMINATION OF THE PATIENT AND SYMPTOMATIC DIAGNOSIS**—By John Watts Murray, M.D. With 274 illustrations. Second edition. C. V. Mosby Company, St. Louis, 1936. Price, \$10.00.

**AN INDEX OF DIFFERENTIAL DIAGNOSIS OF MAIN SYMPTOMS**—Edited by Herbert French, M.D., consulting physician to Guy's Hospital, London. Fifth edition, with 742 illustrations, 196 in color. William Wood and Company, Baltimore, 1936. Price, \$16.00.

**MEDICAL MYCOLOGY, FUNGUS DISEASES OF MEN AND OTHER MAMMALS**—By Carroll William Dodge, Ph.D., mycologist, Missouri Botanical Garden. Illustrated. C. V. Mosby Company, St. Louis, 1936. Price, \$10.00.

**MEDICAL PAPERS**—Dedicated to Henry Asbury Christian, from his present and past associates and house officers at the Peter Bent Brigham Hospital, Boston, Massachusetts. The Waverly Press, Baltimore, 1936.

**PEDIATRIC NURSING**—By John Zahorsky, M.D., professor of pediatrics, St. Louis University School of Medicine. With 144 illustrations and seven color plates. C. V. Mosby Company, St. Louis, 1936. Price, \$3.00.

**PHYSIOLOGY OF LOVE**—By Professor Paolo Mantegazza. Eugenics Publishing Company, New York, 1936. Price, \$3.00.

**PSYCHOLOGY OF SEX**—A Manual for Students by Havelock Ellis. Emerson Books, Inc., New York, 1935. Price, \$3.00.

**SYNOPSIS OF CLINICAL LABORATORY METHODS**—By W. E. Bray, M.D., professor of clinical pathology, University of Virginia. Thirty-two text illustrations, eleven color plates. C. V. Mosby Company, St. Louis, 1936. Price, \$3.75.

**A TEXTBOOK OF SURGERY**—By American authors, edited by Frederick Christopher, M.D., associate professor of surgery at Northwestern University Medical School. With 1349 illustrations. W. B. Saunders Company, Philadelphia and London, 1936. Price, \$10.00.

## BOOK REVIEWS

### SURGERY: QUEEN OF THE ARTS

By William D. Haggard, M.D., professor of clinical surgery, Vanderbilt University School of Medicine. 389 pages with 41 illustrations. W. B. Saunders Company, Philadelphia and London, 1935. Price, \$5.50.

This volume is composed of a collection of addresses and original papers prepared by the author during his long experience as a practitioner. The volume takes its title from the first address (of the same name) delivered before the Clinical Congress of the American College of Surgeons in 1933. In each of these addresses the author draws generously from the history of medicine, indicating the evolution of surgery as an independent specialty. The latter half of the volume presents a score or more of selected papers and surgical clinics of unusual interest.

To those physicians whose practice is limited to surgery and to those who would review the developments of surgery in its evolution from early times, this volume will be of especial interest.

### NURSERY EDUCATION—THEORY AND PRACTICE

By William E. Blatz, M.A., M.B., Ph.D., professor of psychology, University of Toronto; Director, St. George's School for Child Study. William Morrow and Company, New York, 1935. Price, \$3.50.

This volume has been based upon a wide experience in the problems of nursery education and presents in a clear and concise form the problems of the pre-

school child and methods of meeting these problems in a most satisfactory manner.

The authors stress the desirability of assisting the pre-school child through the innumerable problems of this period by maintaining an attitude of serenity, understanding and non-interference. While a major portion of the book is devoted to those matters of physical routine in work and play, which are so valuable in establishing proper habits, it also deals with those emotional adjustments which have to do so largely with the mental health of the child.

The volume will be valuable to those interested in and directing child education during this formative period.

### MEDICAL TREATMENT OF GALLBLADDER DISEASE

By Martin E. Reh fuss, M.D., clinical professor of medicine, Jefferson Medical College; and Guy M. Nelson, M.D., instructor of medicine, Jefferson Medical College. 465 pages with 113 illustrations. W. B. Saunders Company, Philadelphia and London, 1935. Price, \$5.50.

During the past twenty years one of these authors has had occasion to treat several thousand cases of gallbladder disease medically and it is upon this wide experience that he has written this manual for the guidance of physicians and students.

It is generally recognized that many cases of gallbladder disease are unsuitable for operation, and it is in this group particularly that the author has achieved brilliant results by medical management.



He presents in his early discussion the gallbladder problem with methods of history taking and physical examination required for accurate diagnosis. He then discusses the method of outlining a suitable medical treatment and determining the type of cases in which benefits may be expected. In other chapters he outlines the preoperative care of the gallbladder patient who requires surgery and procedures for following this case through after surgery is done.

This volume, written by such eminent authority, will appeal to every physician enjoying a general practice and even occasionally seeing patients with gallbladder disturbances. Certainly the volume merits wide distribution.

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#### THE NATIONAL FORMULARY

Sixth Edition, prepared by the Committee on National Formulary by authority of the American Pharmaceutical Association. Official from June 1, 1936. Published by the American Pharmaceutical Association, Washington, D. C., 1935.

Founded in 1888 the National Formulary of the American Pharmaceutical Association has usefully served the needs of the medical profession continuously to date. In the present revision, the Committee presents an up to date survey of useful drugs and official preparations. While overlapping in its coverage with the United States Pharmacopeia, it discusses drugs omitted from the Pharmacopeia and presents certain mixtures which are of apparent usefulness.

The material is presented under four general heads: first, a monograph on drugs, chemicals and preparations; second, materials and preparations for diagnostic use; third, general tests, processes and apparatus; fourth, history of the National Formulary. The official character of this work, together with the meticulous care exercised in its preparation, assures its exactness and authoritativeness. Its enlarged scope to include glandular preparations increases its usefulness.

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#### NEW PATHWAYS FOR CHILDREN WITH CEREBRAL PALSY

By Gladys Gage Rogers, and Leah C. Thomas. The MacMillan Company, New York City, 1935. Price, \$2.50.

The authors state that these cases of cerebral palsy constitute the second largest group of crippled children, second only to infantile paralysis. Contrary to the common belief, these children suffering from the spastic paralyses following birth injuries are not subnormal mentally, at least not so *per se*, and if given the surroundings which they require for their adjustment to work and play, they can develop normally as other children and fit themselves in many instances to perform a useful and self-supporting

work. It is rather surprising, in view of the number of cases of cerebral palsy, that no very effective guide to the management of these cases has previously been prepared and it would seem timely indeed that these authors, because of their long experience in dealing with these patients, should prepare this text for the guidance of teachers, mothers, and physicians, who assume the care and education of the children.

The authors make no claim to the cure or relief of the paralyses which develop in these cases. Rather, they attempt an adjustment of the patient to his handicap and strive to banish the fear complex so prevalent in these patients. Through muscle training which constitutes the first discussion in this text, improvement may be obtained with many of these patients and if this improvement extends no further than an increased coordination, a useful purpose will have been served. Physicians particularly will be interested in this phase of the work, though the average teacher and mother will be perhaps more interested in the sections dealing with the mental and moral training of these patients, which will fit them to meet the problems of life.

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#### PRESCRIPTION WRITING AND FORMULARY

By Charles Solomon, M.D., assistant clinical professor of medicine, Long Island College of Medicine. J. B. Lippincott Company, Philadelphia, 1935. Price, \$4.00.

The author of this volume, a professor of clinical medicine, has attempted to furnish the physician with the essential knowledge concerning the principles of prescription writing so that he may intelligently prepare prescriptions suitable to the individual case. Most authorities agree that the younger physicians, and particularly the newly graduated physicians, have an insufficient training in prescription writing and, for this reason, are likely to use a few rote prescriptions or proprietary preparations. Familiarity with a volume, such as that offered by Dr. Solomon, should go far toward correcting this difficulty.

After a brief survey of the history of prescription writing, the author takes up those practical considerations essential to the mastery of this subject, offering in the third section of the book a formulary of suggested prescriptions suitable for many conditions. It is not his intention that these prescriptions should all be accepted without modification, but rather that they should serve as a guide to the physician who may modify or alter the prescription to suit the individual case.

The volume follows closely the United States Pharmacopeia and the Fifth Edition of the National Formulary, as well as conforming entirely to the recommendations of New and Nonofficial Remedies, prepared by the Council on Pharmacy and Chemistry of the American Medical Association. We believe that this volume should be widely accepted, since, in our opinion, it generously merits success.

### THE PARATHYROIDS IN HEALTH AND IN DISEASE

By David H. Shelling, M.D., Johns Hopkins University and Hospital. Illustrated. C. V. Mosby Company, St. Louis, 1935. Price, \$5.00.

This book nicely correlates the recent experimental work and clinical observations made concerning the parathyroid glands. The author has covered the subject thoroughly and discussed the various phases of parathyroid function and dysfunction, making his book reflect every phase of the parathyroid problem. Those investigators and clinicians having particular interest in a single portion of this problem may feel that their respective interests have been slighted, but the author compensates for his inability to present the subject exhaustively by furnishing an extensive bibliography at the close of each chapter so that those interested may review pertinent original articles.

Throughout the volume the author has attempted to differentiate between the various parathyroid functions, and to explain both the normal and abnormal conditions observed upon the known laws of chemistry and physics. The chapters on hypo- and hyperparathyroidism, as well as the chapter dealing with the use and misuse of the parathyroid hormone, will be of particular interest to the clinician.

N. B. A.

### PHARMACOPEIA OF THE UNITED STATES OF AMERICA

Prepared by the Committee on Revisions and published by the Board of Trustees, United States Pharmacopeia Convention. Official from June 1, 1936. Mack Printing Company, Easton, Pennsylvania, 1936.

"The object of the Pharmacopeia is to provide standards for drugs and medicines of therapeutic usefulness or pharmaceutic necessities sufficiently used in medical practice within the United States or its possessions; to lay down tests for the identity, quality and purity of these; to assure so far as practical uniformity in physical properties and active constituents."

Since 1820 the United States Pharmacopeia has faithfully served these ends and is today recognized as standard throughout the United States and its possessions. The present revision has been necessary to bring the text entirely up to date and in keeping with the newer discoveries in this branch of medicine. For those familiar with this book it will suffice to say that its general form and composition have remained unchanged. For those unfamiliar with the volume it may be stated that the book follows the paragraphic form and discusses not only the physical and chemical properties of all the important drugs,

but also furnishes tests for identity, tests for purity, methods of assay, storage and preparation.

This volume furnishes a most useful guide to those who wish to know what is and what is not official and for those who wish to have definite and authentic information concerning commonly used drugs.

### AN INDEX TO DIFFERENTIAL DIAGNOSIS OF MAIN SYMPTOMS

Edited by Herbert French, M.D., consulting physician to Guy's Hospital, London. Fifth edition, with 742 illustrations, 196 in color. William Wood and Company, Baltimore, 1936. Price, \$16.00.

Since 1912 when the first edition of this valuable work appeared, this index of differential diagnosis has enjoyed a well earned popularity. The work has been planned to suggest an approach to differential diagnosis on the basis of the main symptoms presented by the patient, and if intelligently employed, admirably serves this end. The work is not intended to supplant but rather to supplement careful history taking and complete physical diagnosis.

While encyclopedic in character, the individual discussions are terse and sufficiently brief to encourage the busy physician to seek aid through this channel. The current revision brings the text entirely up to date, and the numerous added plates and illustrations add materially to its usefulness. It is easily the most outstanding work of this sort which has been offered to the medical profession.

### THE 1935 YEAR BOOK OF PEDIATRICS

Edited by Isaac A. Abt, M.D., professor of pediatrics, Northwestern University Medical School; and Arthur F. Abt, M.D., associate in pediatrics, Northwestern University Medical School. The Year Book Publishers, Chicago, 1936. Price, \$2.25.

The 1935 Year Book of Pediatrics marks the thirty-fifth anniversary of this volume. Like its predecessors it is intended to reflect in epitomized form the pediatric progress of the year. When clinical subjects are given greater prominence, the more theoretical or scientific ones are not excluded from discussion.

The first twenty-five pages of the book are devoted to a special article on the progress in infant feeding by Dr. Isaac A. Abt, who has edited all of the previous editions of this work except the first, which was compiled by the late Dr. W. S. Christopher. As might be anticipated, this article alone would be sufficient justification for the publishing of this volume. However, the merit of the volume does not end with this article. The entire text is crowded with resumés of the year's choicest literature, supplemented by timely editorial comments at the close of most reviews.

This volume continues the high standards previously established in the editing of these year books.



### THE 1935 YEAR BOOK OF THE EYE, EAR, NOSE AND THROAT

*The Eye*, by E. V. L. Brown, M.D., and Louis Bothman, M.D.; *The Ear, Nose and Throat*, by George E. Shambaugh, M.D., Elmer W. Hagens, M.D., and George E. Shambaugh, Jr., M.D. The Year Book Publishers, Chicago, 1935. Price, \$2.50.

This carefully prepared review of the year's literature in this particular field has established its usefulness throughout the many years during which it has been offered to the medical profession. The present number maintains the efficiency and high standards set by its predecessors.

The eye, the ear, the nose and throat are each considered in separate sections, and this classification permits the physician interested in only one branch to select his reading without difficulty. The authors, in preparing the condensation from the original articles, do so without modifying the original author's viewpoint or conclusions. When advisable, editorial notes explain or exemplify the text, and in many instances reflect the viewpoint of the editor. The voluminous literature in all branches of medicine makes it impossible for the physician to know the literature without assistance, and the yearbook offers this assistance through its able editorial staff.

### INTERNATIONAL CLINICS

Volume IV, Forty-fifth Series. Edited by Louis Hamman, M.D., visiting physician, Johns Hopkins Hospital, Baltimore. J. B. Lippincott Company, Philadelphia, 1935.

In this volume are presented eight clinics on themes of interest in general medicine and six clinics of a surgical character.

Outstanding in the first group is the clinic on Anemia in Pregnancy by Maurice B. Strauss of Boston, The Nature and Meaning of Functional Disease by Max Seham of Minneapolis, and A Review of the Present Status of the Treatment of Diabetes Mellitus by Manual Gardberg of New Orleans. Of general interest in the second group should be mentioned the discussion on Hysterical Contractures by Arthur Steindler of Iowa City, and the review of the Present Trends in the Management of Peripheral Arterial Disease by Herman E. Pearse, Jr., of Rochester, New York.

The report of these clinics because of their complete and exhaustive character, constitutes monographs on the subjects discussed and should prove of inestimable value to the man who would keep abreast of modern medicine.

### PHYSIOLOGY OF LOVE

By Professor Paolo Mantegazza. Eugenics Publishing Company, New York, 1936. Price, \$3.00.

Now for the first time this work by the international authority, Professor Mantegazza, is available in a complete and unexpurgated English edition. Working on the belief that the esthetic and emo-

tional aspects of the sex life are little understood and should be carefully studied for an appreciation of those morbid states that result from a derangement of these attributes, the author has discussed with clarity and frankness the emotional and psychologic aspects of mankind's amorous nature. This writing exhibits rare insight into these problems and reflects an experience enjoyed by very few writers in this field.

The "Physiology of Love" is a very fit companion to Professor Mantegazza's earlier contribution entitled "Sexual Relations of Mankind." This volume will be of particular interest to the sexologist, the eugenicist and the psychiatrist, although it is manifest of importance to every practitioner of medicine.

### A TEXTBOOK OF SURGERY

By American authors, edited by Frederick Christopher, M.D., associate professor of surgery at Northwestern University Medical School, with 1349 illustrations. W. B. Saunders Company, Philadelphia and London, 1936. Price, \$10.00.

While written primarily as a textbook for medical students, this volume because of its completeness will serve admirably as a reference book for practicing physicians. The text follows the usual scheme of presenting the theory and practice of surgery by systems, discussing the symptomatology, diagnosis and surgical treatment of diseases and conditions commonly considered as surgical.

Appreciating fully the visual approach to an understanding of surgical procedures, the authors have generously employed illustrations and figures throughout the text. Most of these illustrations are original and have been selected with care from the author's own collection. The impressive list of contributors assures accuracy and a judicious selection of the methods presented.

This textbook should have ready acceptance in teaching institutions and a generous use as a reference volume for practitioners.

### THE COPELAND BILL

(Continued from page 266)

cerning the drug or device in question. Can we conceive of a more certain way of defeating enforcement than this laborious and elusive approach toward penalties?

It is hoped that the bill will not become a law until many of its weaknesses are corrected and those cited are by no means the only ones which should be considered. The efforts of every well informed citizen should be directed toward this end so that a law, if and when enacted, will truly merit the definition offered in the present Copeland Bill, "An act to prevent the adulteration, misbranding and false advertising of food, drugs, devices, and cosmetics . . . and in preventing deceit upon the purchasing public."

# The JOURNAL

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No. 6

### HERNIA—ITS CURE BY THE INJECTION OF IRRITATING SOLUTIONS\*

CARL O. RICE, M.D., Minneapolis, Minnesota

I need not go into the history of the injection method for the cure of hernia, except to say that the method is by no means new. It has been only recently revived, however, and strangely enough it was found that its rationale had not been thoroughly investigated until within the past few years. Three years ago this method was instituted at the Minneapolis General Hospital primarily for the purpose of using it in poor surgical risks and also to relieve the congested situation which prevailed in the surgical wards during that period of the depression. We obtained such satisfactory results that we soon extended its use to others who did not wish to have operations. It was not long before we found our hernia clinic so congested that we could scarcely find time or space in which to care for them. These cases taught us many new experiences. We learned that we could obtain cures, but when we were asked how these cures were obtained we could only postulate. Therefore it became our problem to prove our theories.

#### METHOD OF INVESTIGATION

As we occasionally encountered individuals who did not know whether or not they desired the injection method we offered them the privilege of changing their minds after they had received one or two injections. We then required these individuals to wait a specified period of time before admission into the hospital. In so doing, biopsies of the tissues in the inguinal canal at the site of injection, were obtained from eighteen hours to forty-two days after the injection had been made.

These sections revealed the typical findings of an inflammatory reaction in which the reparative processes predominated. In speaking of inflammatory reaction we do not mean infection, as might be interpreted by the laity. To them inflammation

and infection are essentially synonymous. To the medical profession it should mean the reaction which takes place in the tissues after injury and during the course of healing. Infection is inflammation but inflammation is not necessarily infection.

Inflammatory reaction has been described by Bell as passing through three essential phases, i. e., destruction of tissue, exudation and healing. Destruction of tissue is manifest in several different ways. It may be from cutting or bruising, or from bacterial or chemical causes. Exudation then follows upon this as a natural reaction of the tissue incident to the injury of living cells. Exudation may be manifest by the accumulation of pus, lymphocytes, eosinophiles, fixed connective tissue cells, plasma cells, serum, lymph, etc. Depending upon the predominance of one or the other of these types of cells or fluids, the exudates have been designated purulent, fibrous, serous, etc. The third stage is that of repair. In this phase of an inflammatory reaction we observe the growth of new cells, fibroblasts, fixed connective tissue cells, new blood vessels and eventually the production of adult fibrous tissue (scar tissue).

The thing which we desire in the treatment of hernia by the injection method is the minimum of the first two phases. We do not wish to destroy tissue in order to produce new tissue, nor do we need an excessive amount of polymorphonuclear neutrophil leukocytes, serum or plasma in order to build up new tissue, for these exudative reactions soon disappear. On the other hand if we do obtain excessive destruction and excessive exudative reaction with a predominance of polymorphonuclear neutrophil leukocytes it becomes possible for this to be manifest as an abscess.

The first tissue sections which we made on the human being were obtained after the injection of the Thuja mixture. These occasionally showed areas of tissue necrosis. The exudative reaction was very pronounced. Repair and the production of dense fibrous tissue eventually resulted, however, but it did not seem rational to produce new

\*Presented before the Dickinson-Emmet County Medical Societies, November 21, 1935.



tissue by destroying the old. We began to try, therefore, the effect of other solutions, and in so doing subsequent histologic sections were taken from the abdominal wall of the dog. An occasional biopsy with other solutions was obtained from the human being and these showed essentially the same findings as we obtained from the dog.

These investigations proved to us that any of the solutions containing phenol, tannic acid or alcohol produced more of the destructive and exudative phase of the inflammation than seemed desirable. The sodium salt of psyllium seed (sylvanisol) seemed to be the most desirable. It produced less of the destructive and exudative phase. In addition it produced less pain when injected. It

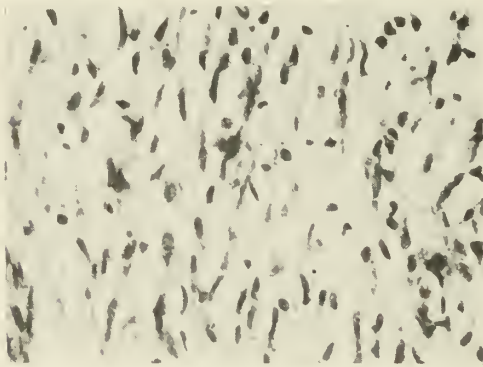


Fig. 1. Microphotograph eleven days after the injection of sylvanisol. High power magnification. This shows fibroblasts and intracellular fibers.

produced no observable systemic effects from its injection intravenously. It produced an abundance of healthy looking fibrous tissue. The details of this histologic work were performed by Drs. Rice and Mattson, in June, 1934, and a description is now awaiting publication. (Figure 1.)

#### TECHNIC

The technic of this procedure\* requires an accurate knowledge of the anatomy. In order to be accomplished satisfactorily the skill with which it is performed is just as important as that of a surgical operation. A long two or two and one-half inch, 22 or 24 gauge, needle is used on a five cubic centimeter syringe.

#### *Indirect Inguinal Hernia*

For an indirect inguinal hernia the injections are started at the internal ring. This area is located by choosing a site one centimeter lateral to a point midway between the anterior superior spine of the ileum and the pubic tubercle. Three injec-

tions are placed in such a manner that the solution circumscribes the internal ring. In this way the internal ring, the site through which an indirect inguinal hernia must pass, is made narrower much as an annular stricture of the esophagus or rectum makes the lumen of these organs narrower. Subsequent injections are placed in the inguinal canal, around the cord, in a similar manner so that eventually the entire inguinal canal is constricted around the cord. The external ring is then made smaller by placing the injections around the margin of the external ring just beneath the plane



Fig. 2. Third dimension drawing through the left inguinal region showing the method of approach to the internal ring (4). Subsequent injections are placed around the cord (1) in the inguinal canal from the internal to the external ring (2).

of the external oblique fascia. Finally a few injections are placed in the plane of the transversalis fascia in the lower half of Hesselback's triangle so as to strengthen the floor of the inguinal canal at the site where a subsequent direct inguinal hernia may develop. (Figure 2.)

#### *Direct Inguinal Hernia*

The technic of treating a direct inguinal hernia is somewhat different. In this condition we have no concern about the internal ring. A direct hernia passes through the lower half of Hesselback's triangle, medial to the inferior epigastric artery, through the weakened transversalis fascia. Therefore it becomes necessary to strengthen this area. In so doing our injections are placed in the plane of the transversalis fascia in the triangular area between the conjoined tendon, above, the ilio-inguinal ligament, below, and the rectus sheath, medially. Those injections which approach the ilio-inguinal ligament must be made under the cord so as to strengthen the floor of the inguinal region through which a direct inguinal hernia may pass. (Figure 3.)

#### *General Principles*

These injections can be made every other day. Only one site is injected at each time. Sylvanisol

\*The details of the technic have been more fully described in a paper which will appear in the June issue of The Southern Surgeon.





inguinal hernias if the defect through the fascia is not too large. Likewise in postoperative abdominal incisions it has been possible to obtain a closure if the fascial separation is not greater than one and one-half or two centimeters in diameter. I have not become enthusiastic about the method in those cases where the defect is larger because of the difficulty of injecting into the defect without danger of entering the peritoneal cavity. Similarly, I have not used it in any but the very small umbilical hernias. For umbilical hernias in infants strapping has been found to be successful in a large percentage of cases.

It is definitely contraindicated in any hernia which cannot be reduced or maintained with a suitably fitting truss. It should not be used in any individual with a chronic cough until the cough has been controlled; this includes individuals with chronic bronchitis, tuberculosis, etc. Individuals with prostatic hypertrophy who are required to strain during urination should have their prostate "tended to" before attempting to have their hernia repaired. Individuals with ascites, cancer or decompensating heart disease should not be used as subjects for this type of treatment. The presence of an undescended testicle makes this method of treatment inadvisable.

#### THE TRUSS

A well fitting truss must be worn for a week or ten days before the injections are started so that the patient may become accustomed to its pressure. After the injections have been started the truss must be worn day and night so as to allow no opportunity for the abdominal contents to descend into the hernial sac and thereby redistend the opening. Unless a water proof truss can be used, baths must be eliminated during this period. When the patient comes to the office for treatments the truss must be removed only after the patient has been placed on the table and must again be applied before he gets up. After the treatments have been started it is preferable not to "test out" the hernia by coughing, straining, etc., until the entire series of injections have been given. The first test should then be made with the patient lying on his back. If no impulse is detected he may be allowed to remove the truss at night but must be instructed to replace it before arising. Three weeks later he should be examined again in the office, this time in the erect position. If no impulse is palpated he must be instructed to wear the truss for two months longer and at the end of that time the truss must be weaned off gradually within a period of two weeks. During the convalescent period my pa-

tients are instructed to carry out exercises which tend to strengthen the abdominal muscles. It is well to keep the patient under observation for the next eight or ten months. If at any time a weakness or impulse is detected a few additional injections will usually suffice.

#### DIFFERENTIAL DIAGNOSIS

The impulse of a hernia at the external ring must not be confused with the impulse of the muscle at this site. The hernia imparts a soft fluctuant sensation, whereas the conjoined tendon imparts a hard, firm sensation when these muscles suddenly come in contact with the palpating finger. I have seen physicians misinterpret this impulse and erroneously make a diagnosis of hernia. A differential diagnosis between direct and indirect inguinal hernia is important. An indirect inguinal hernia may extend into the bottom of the scrotum or it may pass only part way into the scrotum. A direct inguinal hernia, even though large, does not pass to the bottom of the scrotum but lies suspended at its base in the sling-like attachment of the external spermatic fascia and cremaster muscle to the cord which prevents the direct inguinal hernia from dissecting itself into the scrotum.

#### COMPLICATIONS AND SEQUELAE

As with any surgical procedure, complications may develop during the course of treatment by this method. I am convinced, however, that most of the complications are the result of improper technic or the result of using a solution which is too irritating.

Pain, though not a serious sequelae, is a distressing one which may influence the patients to discontinue the treatments. With the use of many of the solutions which contain tannic acid, alcohol or other caustic acids, pain is very evident at the time of injection. In these instances the use of novocain five minutes preceding the injection will be found to be of advantage. Sylnasol produces pain so rarely that I have not found an anesthetic necessary. Pain may develop after the injection has been made but is usually manifest more in the nature of a soreness which lasts for an hour or two and then subsides.

Induration of the cord is one of the most frequently observed complications. This is manifest by a hard sausage-like swelling in the region of the cord which extends down into the scrotum to the extent to which the hernial sac extended. It is produced by placing the solution into the hernial sac or very close to it. This then produces an inflammatory reaction in the sac with subsequent obliteration of the sac by fibrous ad-

hesions. It subsides spontaneously and occasions no cause for alarm. I have observed this reaction more frequently with the use of tannic acid and alcohol solutions than with the use of synlasol. If this reaction does occur treatments should be postponed for a week or ten days.

Abscess formation at the site of injection has been rumored to have occurred. This probably results from septic injections or from injecting too large a quantity of a very irritating solution.

Gangrene of the skin has been mentioned and is probably due to the interruption of the blood supply or the injection of a very caustic solution.

Injection of a loop of bowel which has been incompletely reduced has been reported. This produced gangrene of the bowel and required resection. This error is entirely attributable to faulty technic.

Atrophy of the testicle does not occur. It would not be reasonable to suppose that gradual constriction of the cord by the production of scar tissue could interfere with the blood supply, for the water-hammer action of the pulsating vessels would tend to prevent constriction around a vessel. Sudden constriction of the cord at the time of operation has repeatedly resulted in this complication.

Ulceration of the skin from pressure of the truss is occasionally observed and is prevented by having the patient become gradually accustomed to its pressure before treatments are started.

Intraperitoneal injection may occasion severe pain in the abdomen for a short period of time with associated rigidity and rebound tenderness, but if a non-caustic solution is used there need be no fear of injury to the bowel unless it has been punctured by the needle.

DISCUSSION

Histologic sections have revealed that scar tissue can be produced by the injection of various types of solutions. If this can be accomplished and the scar tissue can be placed where it is desired it seems rational to suppose that a hernia can be cured by the injection method as well as by a surgical operation. The end result from a surgical operation is the production of scar tissue at the site of the defect. This is accomplished under direct vision and with the aid of sutures. It is not intended to convey the idea that the injection method *per se* is superior to the operative method, but that the convenience to the patient and the comparative safety of this method makes it a splendid alternative for those who prefer not to be operated upon. The incidence of cures certainly is not less than that following surgical operation if this method is placed in the hands of

experienced men. There are many patients who should not be treated by the injection method and to include them in a series would naturally add to the list of failures; but to discard the method *in toto* would only constitute unfounded condemnation.

CONCLUSIONS

- 1. The injection method for the cure of hernia has proved to be clinically and scientifically sound.
- 2. Indications and contraindications can be definitely determined.
- 3. Skillful technic and good judgment will play a large factor in producing excellent end results.
- 4. This method can be mastered by anyone who chooses to devote a few conscientious hours in acquiring a knowledge of the anatomy and technical details.

THE TREATMENT OF STRANGULATED EXTERNAL HERNIA\*

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It is the infrequency with which this condition is met, making individual experience small and the serious problem that may be encountered, which makes it worthwhile to present this subject for your consideration and discussion. The infrequency is indicated by the following reports:

Beller and Colp <sup>1</sup> , 1926		
3879 Cases of Hernia, 6% Strangulated		
No. of cases	Type	Strangulated
3208	Inguinal	4%
294	Femoral	32%
377	Incisional	3%

Erdmann <sup>2</sup> , 1927		
2542 Cases of Hernia, 3.7% Strangulated		
No. of cases	Type	Strangulated
2300	Inguinal	1.8%
97	Femoral	25.7%
147	Incisional	5.5%

In the five year period from 1930 to 1934 inclusive there were 267 patients with hernia operated upon by the staff at the Methodist Hospital. Of these hernias 12.7 per cent were strangulated. They were classified as follows:

No. of cases	Type	Strangulated
204	Inguinal	9% plus
8	Femoral	87.7%
39	Incisional	5% plus
11	Umbilical	10% plus
5	Epigastric	None

The higher percentage of strangulation is probably due to the delay in seeking relief of the uncomplicated hernia, because of the economic situation of the patients. The seriousness of this prob-

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lem will be indicated later. The treatment of strangulated hernia should consist of release of the constriction, care of the contents of the sac, and repair of the hernia. I mention taxis only to condemn its use after the first hour or two of strangulation. The earliest possible surgical treatment gives the best results.

The following points are important in the pre-operative treatment:

1. If the patient is seen early, no special treatment is usually necessary except a preliminary sedative.

2. If dehydration has occurred, the fluids should be replaced. This is most promptly done with normal saline, given intravenously.

3. If there is shock the blood pressure is better supported with 500 cubic centimeters of ten per cent gum acacia intravenously than by normal saline. If the shock is due to loss of blood a transfusion is most desirable.

4. In the presence of distention pass a nasoduodenal tube and leave in place.

I believe the choice of an anesthetic is important, because many of these patients are elderly and quite ill. Of the seven strangulated femoral hernias at the Methodist Hospital the patients ranged in age from seventy-three to ninety years. I would suggest that regional block or local infiltration with ethylene or nitrous oxide, be used for the elderly and seriously ill patient. For those with a sound cardiovascular system and not in shock, spinal anesthesia or ether may be used, my personal preference being for spinal anesthesia.

The incision is the same as for an interval herniotomy. However, in the femoral type if resection is to be done, a rectus incision is advisable since it facilitates handling of the bowel and saves a too extensive incision of Gimbernat's ligament which encourages recurrence of the hernia. Keynes<sup>3</sup> recommends approach through the abdomen first and release of the constriction by cutting anteriorly instead of incising Gimbernat's ligament. The inguinal route is preferred by some. The sac is opened with care and may contain small or large bowel, appendix, Meckel's diverticulum, tube, ovary, bladder, etc., or more than one viscus. If two loops of bowel are present the intervening loop which is in the abdomen should be examined. It may be strangulated. Occasionally the sac is empty. If so it is wise to bring into view for inspection the part that was strangulated.

The contents and stage of strangulation in the Methodist Hospital series were as follows:

Type	Stage	Contents	Mortality
Inguinal 24 cases	1st	12—small bowel.	4%
	2nd	8—small bowel. (76 died)	
	3rd	4-a. gangrenous appendix and cecum with two perforations, appendectomy, closure of perforations, drainage, recovery. b. Two omentum-resection. Recovery. c. one small bowel-resection, 78 recovery.	
Femoral 7 cases	1st	1—small bowel. (Richter type).	14%+
	2nd	2—small bowel.	
	3rd	4—Littre type—Resection Meckel's recovery. 2—gangrenous appendix, appendectomy, recovery. 3—omentum-resection. Recovery 4—resection—73 died	
Incisional	1st	2—small bowel.	
Umbilical	1st	1—small bowel	

The bowel is the stumbling block to good results, and therefore, only treatment of the bowel will be considered. The stages of strangulation are: first, congestion; second, inflammation; and third, gangrene. The second and third stages are the most difficult to manage; either we do too little in the second stage or too much in the third stage. The type of fluid in the sac should be noted, as it varies with the condition of the bowel; that is, in the early stages of congestion it is clear and straw colored, later it becomes blood stained, and if the bowel is permeable to organisms it may be foul smelling and turbid. With release of the constriction, the bowel in the stage of congestion quickly regains its color and is replaced.

The question of viability arises in the second stage. The bowel is treated with hot packs and may be replaced in the abdomen for a few moments. The usual signs of viability mentioned are retention of sheen to the peritoneum, return of color, consistency of the bowel, pulsation of the mesenteric vessels and peristalsis in the strangulated loop. Jacques, et al<sup>4</sup> in a recent series of experiments in dogs, in an attempt to establish more accurate criteria as to the viability of the strangulated bowel, concluded that "the consistency of the strangulated intestine and the return of color after the release of the constriction are of most value, while mesenteric pulsations, odor and the amount and character of the exudate present are misleading. The absence of pulsations in the mesenteric arteries cannot be accepted as evidence of occlusion of these vessels. Of the special tests performed, the demonstration of contractility to faradic stimulation is regarded as the most significant."

When the viability of the bowel is doubted, if the patient is in a good condition, resection is the best procedure unless the gangrenous area is

small, when it may be inverted with a purse string suture or plicated, and an enterostomy performed proximal to the suture line, if there is much evidence of obstruction. Contrary to this advice is that of Field<sup>5</sup> who treated thirty cases of strangulated hernia by release of the constriction, replacement of the bowel and repair of the hernia with one death, that in a patient seventy-seven years of age who died on the eleventh day of pulmonary symptoms. From his experience he questions the necessity of too frequent resection except in frank gangrene. Black<sup>6</sup>, if in doubt of the viability, and when it does not seem safe to resect, replaces the bowel and drains through an adjacent stab wound. In one case of questionable viability he left the bowel external, wrapped in vaseline gauze with heat applied, and returned the bowel to the abdominal cavity after five days. This patient recovered, but such fortunate results are not always obtained. Beller and Colp<sup>7</sup> report a mortality of 29 per cent in the stage of inflammation. Seven of ten autopsies out of fourteen deaths showed error in judgment of the viability of the bowel. In our series at the Methodist Hospital one such error was made in eight cases of strangulated inguinal hernia in the stage of inflammation, that in a male seventy-six years of age, who died on the ninth day of symptoms of peritonitis and obstruction.

As the stage of gangrene is approached there is an increasing amount of intestinal obstruction except in the Richter hernia, when there is only a small portion of the circumference of the bowel involved, and in the Littre hernia. In these two types gangrene may take place with little or no obstruction.

The age and condition of the patient are determining factors in the operative procedure. As a rule elderly patients do not stand resection well though in our group of cases there was one male seventy-eight years of age, who recovered following a primary resection of a gangrenous loop in an inguinal hernia. There was also a female seventy-three years of age who died following a resection in a femoral hernia; a 50 per cent mortality rate for primary resection, which is much too high but conforms to the average mortality rate given for primary resection in this stage of strangulation.

The treatment in this stage is divided into two parts; first, primary resection, and second, drainage of the loop in situ, later re-establishing the continuity of the bowel. Watson<sup>8</sup> states that routine emptying of the proximal loop before anastomosis lowers the mortality rate 25 to 50 per cent, but Elman<sup>9</sup> from his experience does not think emptying and stripping of the proximal segments is valuable. This is still a controversial point. McIver<sup>10</sup> in a review of 147 cases of exter-

nal strangulated hernias at the Massachusetts General Hospital for the ten year period from 1918 to 1927 states that fifteen resections were done, eight with immediate anastomosis and in seven the ends of the intestine were brought out and the anastomosis reserved for a secondary operation. There were five deaths in each group. Frankau<sup>11</sup> in reporting the results of a collective investigation instituted by the Association of Surgeons of Great Britain and Ireland on strangulated hernia finds a 42.8 mortality rate in 105 cases of primary resection and says that "secondary resections after preliminary drainage, of which seven were performed with one death, present an entirely different problem as no obstruction is present at the time of operation."

Primary resection is ideal but can it be done with satisfactory results? Yes, if it is used only in those cases in which there is little or no obstruction. When obstruction is present in sufficient amount to become a factor, the obstruction should be relieved in the simplest manner possible, that is, by draining the gangrenous loop in situ or by removing the loop, leaving the ends open. One may also place a de Pezzer catheter in each end, the proximal one to carry away the drainage, thus keeping the wound cleaner, and the one in the distal end for the administration of fluids. Re-establishment of the continuity of the bowel is to be done as soon as the patient's condition is satisfactory. High fistulas are not well tolerated, but in strangulated external hernia the segment involved is usually low. I believe the two stage operation must be adhered to in the presence of acute intestinal obstruction if we expect to show any improvement in the mortality rates which now stand between 40 and 50 per cent. Repair of the hernia is made according to one's preference. If the bowel is drained in situ the hernia repair is deferred.

Postoperative care is routine unless there has been local repair of the bowel or primary resection. In these cases the patients should receive plenty of morphine, nothing by mouth for three or four days, and fluids by other routes. Enemas should not be given before forty-eight hours have elapsed, and no laxative until the patient is up and about. For shock one should give 500 cubic centimeters of ten per cent gum acacia, and if it is due to hemorrhage, a transfusion should be done. If symptoms of peritonitis develop after a loop which was thought to be viable, has been replaced, a prompt laparotomy is indicated.

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## SEQUELAE OF HEAD INJURIES\*

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The high speed of modern travel and the widespread use of the automobile have made the subject of head injuries and their sequelae a matter deserving our special attention. Craniocerebral injuries are not as common in industrial accidents as other traumatic lesions, but they assume particular importance because of their medicolegal aspects. It is important for physicians to remember that there is not always a parallelism between the extent of injury to the skull and to the brain. It follows, then, that there may be definite evidence of skull fracture without serious cerebral damage. On the other hand, the brain may be severely injured without there being any signs of fracture of the skull. Aside from the possibilities of complications such as meningitis from a compound skull fracture the important question confronting us in a head injury case is the amount of damage to the brain rather than the condition of the skull.

Following a blow on the head a patient may suffer from any of the following conditions:

(1) Concussion. Trotter has adequately defined this condition as "one of widespread paralysis of the functions of the brain which comes on as an immediate consequence of a blow on the head, has a tendency to spontaneous recovery, and is not necessarily associated with any gross organic change in the brain substance." Concussion may prove fatal if it involves the medullary centers. Usually, however, there is complete recovery in a few days, the depression of cerebral function being, to some extent, proportionate to the severity of the blow.

(2) Contusion. This condition is characterized by capillary hemorrhage and edema of the brain. Because the brain is enclosed in a rigid container, the volume of intracranial contents remains the same. A limited swelling of the brain can probably be accommodated by displacement of

neighborhood veins and capillaries will be compressed. In any other part of the body the products of injury would ordinarily be carried away by the blood vessels and the lymphatic system. Because edema of the brain interferes with circulation in its neighborhood, its own absorption is impeded. Contusion, when severe, may prove fatal within a few hours from medullary paralysis, or may be complicated, for example by pneumonia.

(3) Cerebral Laceration. In this condition there is gross solution of continuity of brain substance.

(4) Cerebral Compression. Compression may result from depressed skull fracture, and from subdural hemorrhage which is about twice as common and usually carries a much poorer prognosis than extradural hemorrhage which is most frequently located at the site of a ruptured middle meningeal artery. It is in this latter type and in the cases of depressed skull fracture that the results from prompt surgical intervention are most efficacious.

The late effects of head injuries are of particular interest to us in this discussion. An infrequent, but none the less important late sequel is the traumatic subdural hematoma which may present its initial symptoms weeks or months after the injury. In this complication there occurs an increase in size following the initial formation of a hemorrhage filled, mesothelial lined, semi-permeable arachnoid membrane. Due to the osmotic tension of the blood, proteins contained within the cyst, body fluids, particularly cerebrospinal fluid, are drawn into the sac, resulting in a brain tumor syndrome. Fortunately the cortex underlying one of these cysts is not greatly damaged and the condition is amenable to surgical treatment.

The frequency with which epileptic seizures follow severe head injury has been variously estimated between four and twenty-five per cent. Probably two to five per cent would be more nearly correct. The difficulties in establishing a cause-effect relationship are obvious because the latent period between the injury and the onset of the spells is extremely variable. Those cases which show epileptic seizures beginning within two months properly fall into this group. The onset of seizures after this period may produce differences of opinion regarding etiology. It has been stated that epilepsy of this type is most likely to occur when vascularized scar tissue unites the surface of the brain to the dura. Encephalography may show the area of adherent dura, but more likely the ventricular system will be drawn to the side of the lesion. The traumatic origin of epilepsy can be established if there is adequate history of injury, and especially if there is a focal

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onset, if there are persistent signs of a focal cerebral lesion, and if the radiographic abnormalities described above are present. The treatment is conservative at first, by the use of bromides or luminal, with plans toward excision of the scarred area if the former measures do not alleviate the symptoms.

The residual monoplegias, hemiplegias and aphasias deserve mention. These frequently result from severe trauma to localized areas in the brain.

A condition of particular interest to us is the posttraumatic syndrome. The persistent and chronic complaints of the patient with this affliction tax our diagnostic and therapeutic skill. The development of a posttraumatic state as a sequel to head injury is frequently of considerable medicolegal importance. Unfortunately the later symptoms of cerebral contusion are not uncommonly regarded as neurotic. A review of a few of the symptoms gives us an idea of the possible ramifications. One of the most common complaints is headache. When the patient is at rest he may be quite comfortable. On exertion or stooping, the symptom becomes dull, pressing, throbbing. Excitement, worry and anxiety unquestionably aggravate the difficulty. Dizziness is another important symptom. It may take the form of simple giddiness on standing or stooping, or it may seriously interfere with locomotion. Next in line is profound fatigue. These patients actually are neurasthenic with loss of drive and inability to perform their previous duties. Introspection results; they become irritable; noises bother them. Mental exertion being painful, they lie around doing nothing. It is surprising at times how little a thorough physical and neurologic examination will reveal. In many cases there are no objective evidences of pathology. In other words the subjective complaints greatly outweigh the objective findings. Yet to regard these patients as neurotic in character, merely because we can find nothing on physical examination, is dangerous. It has been previously stated that in a true case of cerebral contusion the main change is in the cerebral vascular system. The blood vessels of the brain are dilated; the brain is edematous and filled with multiple petechial hemorrhages. Diapedesis of red and white cells occurs; later scarring may follow. We can more logically understand the headaches and other symptoms when we realize that the vascular system, particularly the vasomotor control is damaged. The blood supply may be sufficient at rest but be lacking on exertion. On change of posture the absence of the elastic quality to the dilated cerebral vessels prevents compensation to changes in intra-

cranial volume. The advance of symptoms and later signs, such as mental deterioration, can be explained on the basis of the scarring which results.

How, then, are we to evaluate the organic disability in a given case? That the traumatic neuroses do exist, and that neurotic symptoms frequently complicate the picture, is a disturbing element in the consideration of these cases. A man who is struck on the head by an object may have received a blow from which he ordinarily would have recovered in a few days. He is rushed to the hospital. X-rays of the skull are taken. His friends and relatives are over-solicitous. The possibilities of compensation, together with the above factors offer a powerful suggestive effect upon this individual. Previous personality traits may make him more susceptible to these influences. Upon getting up from bed he is weak. A state of anxiety results. He may not return to work because the trauma may offer an escape from difficulties in life which are not always easy to face. Actual malingering is uncommon, however. Wechsler in a recent review of one hundred cases of late effects of head injury found only one case of actual malingering. Foster Kennedy has outlined eight criteria which offer a basis for the study of these cases. One needs to emphasize in this, as well as in the study of other disorders, the importance of an accurate history.

#### A. Absolute Criteria.

1. Roentgen evidence—skull fracture.
2. Bloody spinal fluid.
3. Bleeding from the orifices, especially from the ears.
4. Focal cerebral palsies.

#### B. Presumptive criteria in order of importance.

1. Convulsive states, proved to be posttraumatic.
2. Ventricular distortion, proved to be posttraumatic.
3. History of prolonged unconsciousness.
4. History of adequate trauma, with especial consideration to the occurrence of vomiting following the injury.

The management of a case of head injury, to avoid as far as possible the development of a posttraumatic state, is of extreme importance. A three weeks' period of absolute bed rest after a severe brain injury is considered minimal. Physicians should not suggest questions of medicolegal importance to the patient: suggestions that serious injury is present or has been narrowly escaped should be avoided if possible. At the appropriate time the injured man should return



to work; if necessary, he should be given a lighter job at the same salary in the same factory or office. Matters pertaining to compensation should be handled in a lump sum settlement. Appropriate psychotherapy should be used in the traumatic neuroses, depending upon the nature of the cases.

The traumatic psychoses also deserve consideration. These make up a rather poorly defined group and a very infrequent one as an admission diagnosis to hospitals for mental diseases. The following data have been collected from the records of the State Psychopathic Hospital:

Traumatic Psychoses, 1931-1934			
Diagnosis as Recorded:			
	Males	Females	Total
Traumatic Psychosis . . . . .	11	3	14
Posttraumatic Constitution . . . .	4		4
Posttraumatic Dementia . . . . .	1		1
Posttraumatic Behavior Problem . . . . .	1		1
	17	3	20
Total cases of all types admitted to same institution . . . . .			3861
Per cent of total cases diagnosed as traumatic psychosis . . . . .			.5%
Condition of above patients eighteen months or more after admission:			
Completely recovered and working . . . . .			10
Transferred to state hospitals:			
Retained . . . . .			2
Discharged as improved . . . . .			3
Unimproved but not requiring hospitalization . . . . .			2
Final result unknown . . . . .			3

Even in these cases, psychopathic traits, alcoholism, tainted heredity and contemporary worries undoubtedly played a part. Wechsler makes note of the fact that there is considerable laxity in the use of the term traumatic insanity, and would not include such cases showing delirium, excitement and disorientation, whether brief or prolonged, occurring in the acute course of skull fractures and brain injuries under the traumatic psychoses. It is actually true that such cases are not recorded as psychotic because of the relatively short period of confusion. Protracted delirium, with confabulations may result, however, and may last for weeks or months. A case of this type is in the Psychopathic Hospital at this time, a woman who presents the clinic picture of a Korsakow's psychosis with disorientation for time and place, deficient memory and a marked tendency to confabulate. The posttraumatic patient usually shows decreased tolerance to alcohol and infec-

tions such as influenza. Paranoid projections may make their appearance.

The subject of birth injuries should be mentioned. In these cases, too, an accurate history is important. With an adequate history of trauma at birth and a resultant hemiplegia or monoplegia the diagnosis can be substantiated. Developmental defects are more than likely responsible for the usual case of mental deficiency or spastic diplegia.

CONCLUSIONS

The sequelae of head injuries have been reviewed. In a field of medicine in which opinions differ markedly and in which the pitfalls are many, the examiner must carefully evaluate signs and symptoms as a result of a complete history which includes personality studies, a thorough physical examination, and reliable laboratory and other diagnostic procedures at his command.

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DIFFERENTIAL DIAGNOSIS OF LESIONS IN THE RIGHT SIDE OF THE ABDOMEN\*

With Special Reference to Urology  
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Obviously, the subject of clinical symptomatology referred to the right side of the abdomen is so comprehensive that a detailed analysis cannot be

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undertaken in a paper of this scope. An attempt will be made, however, to enumerate some important differential diagnostic points which have been of assistance to the speaker in interpreting the confusing picture which is so often encountered. Reasons for the difficulty surrounding the diagnosis of right-sided abdominal lesions are obvious. Not only are there a number of important structures in this part of the abdomen, but they are in close proximity to one another. Manifestations of disease in these various viscera are so numerous and often of so similar a nature that the diagnostic acumen of the observer is frequently taxed.

This paper seeks to emphasize the various possible causes capable of producing symptoms of a confusing nature in the right side of the abdomen, and to point out methods of avoiding errors by the intelligent application of modern diagnostic aids. Special attention will be given to urologic conditions, inasmuch as I have observed numerous patients who have had many surgical procedures performed for complaints in the right side of the abdomen, without relief. Subsequent urologic investigation in these cases has demonstrated hitherto unsuspected lesions of the right kidney and ureter which were responsible for the confusing symptomatology, and for the fruitless surgery to which these patients had been subjected.

The appendix is, of course, among the first organs to fall under suspicion when the clinician is confronted with symptomatology pointing to the right side of the abdomen. In the diagnosis of acute appendicitis, there are certain cardinal, reliable facts which must always be borne in mind. In the first place, the pain of appendicitis rarely begins in the right side. In the majority of instances, it starts in the mid-epigastrium, localizing in the right lower quadrant from a few hours to forty-eight hours after the onset. Secondly, the pain is usually accompanied by nausea and vomiting. In the third place, the fever in acute appendicitis is lower than in other right-sided abdominal conditions, and seldom reaches the higher levels seen in pyelitis, salpingitis, or acute cholecystitis and cholangitis. True chills are seldom seen in acute appendicitis. Fourthly, localized tenderness and rigidity are present in the vicinity of McBurney's point. The diagnosis of chronic appendicitis should be made with caution because of the many conditions that may produce recurrent right lower quadrant pain. Statistics from large clinics show that from 50 to 70 per cent of patients diagnosed as having chronic appendicitis fail to obtain permanent benefit from appendectomy. A careful history is of utmost importance when a diagnosis of chronic appendicitis must be considered. Without a story of previous acute at-

tacks, the diagnosis is open to serious question. Especially in the absence of gastric symptoms, chronic appendicitis should not be considered until ptosis of the kidney; stone, stricture, or kink of the ureter; and pyelitis have been excluded.

Lesions of the female generative organs are often responsible for symptoms of a confusing nature. The most common gynecologic conditions requiring differentiation from urinary tract pathology are: Neisserian salpingitis, ruptured ectopic gestation, and twisted ovarian cyst. The history and the presence of the specific organisms in urethral and cervical smears are important in the diagnosis of salpingitis. Ruptured ectopic pregnancy usually produces a characteristic picture, with sudden, severe pain in the lower abdomen, rapid, thready pulse, normal or subnormal temperature, pallor and air hunger of an internal hemorrhage, and a boggy mass in the cul-de-sac of Douglas. In all of these conditions, the findings of a careful bimanual examination, performed under general anesthesia if necessary, are of greatest importance.

Lesions of the biliary tract are important because they are frequently confused with pathology in the right kidney. Most common of these biliary tract lesions, in this respect, is cholelithiasis. These patients usually suffer the characteristic pain of gall-stone colic. The pain is very severe at times, and almost invariably radiates to the back and to the right shoulder. The greatest tenderness is at the margin of the right ribs. There may or may not be jaundice, and with infection, irregular fever and chills. Pyelography and cholecystography are the deciding factors in the differential diagnosis. Occasionally, lateral and stereoscopic films may be required to determine whether one is dealing with renal or biliary calculi. It must be borne in mind that the patient may have both gallbladder disease and stones in the right kidney. Prolapse of the liver may be confused with a ptosis of the right kidney. The differential diagnosis can ordinarily be made by pyelographic study, particularly when the patient is examined in both upright and recumbent positions. Retroperitoneal tumors, tumors of the mesentery, and other extra-ureteral pathology may also be differentiated by ureteropyelography.

Among lesions of the gastro-intestinal tract, peptic ulcer is of importance here chiefly because its complications may present puzzling diagnostic pictures. Acute or subacute perforation of a peptic ulcer may be confused with any of the lesions impeding exit of urine from the right kidney. Acute perforation is ordinarily a striking and characteristic picture. Patients with subacute perforation usually give a history of preceding gas-



tric discomfort, more or less typical of ulcer distress. As in perforation of any other hollow viscus, these accidents are often accompanied by considerable degrees of shock. Confusing findings are often found in lesions of the large intestine. Malignancy of the hepatic flexure and cecum may offer special difficulty in differential diagnosis. These patients usually have a characteristic history, coupled with rather marked anemia, sometimes of the primary type, and with right upper quadrant symptomatology. Both gastro-intestinal radiography and ureteropyelography may be necessary to exclude urinary tract disease. "Colitis" is a diagnosis made with increasing frequency in patients complaining of vague, right-sided abdominal pain. This condition of irritable bowel may produce a picture very much like that of a right-sided hydronephrosis, even to the associated constipation in both conditions. One must be alert to the frequency of ureteral narrowing and urinary retention, and there are many cases in which a diagnosis of "colitis" or irritable bowel should not be made until after careful urologic investigation. Subdiaphragmatic abscess can present a difficult problem. Usually there is a history of antecedent infection, such as an acute appendicitis. Chest x-rays and occasionally the aspirating needle, used with due regard to the possibility of infecting the pleural cavity, are diagnostic aids of importance. Perinephritic abscess must be kept in mind in the differentiation of subdiaphragmatic collections of pus.

Lesions of the central nervous system are occasionally encountered, and these present a confusing syndrome. *Tabes dorsalis*, and rarely, multiple sclerosis, are of particular importance.

Against this background of symptomatology arising from other organs, let us now sketch briefly the clinical significance of pain in its relation to upper and lower urinary tract pathology. Perhaps the most accurate and valuable description of pain of upper and lower urinary tract origin has been given by Randall. He differentiates two main types: true renal pain, and so-called pelvic pain. The first is due to tension within the renal capsule; the second arises from increased pressure within the renal pelvis. This anatomic understanding is of considerable diagnostic importance because it assists the clinician in locating the site of the pathology. True renal pain of the first type, that due to increased intracapsular tension, has some well defined characteristics. It is usually a dull, constant ache; it is ordinarily unilateral, at times it may extend across the midline, but it seldom radiates downward. It is situated almost invariably in the costovertebral angle, and can be elicited or intensified by fist percussion

in this area. It is this form of pain which is so frequently associated with renal tuberculosis, tumors, subcapsular abscess, and perinephritis. This pain frequently must be differentiated from the discomfort of a lumbago. Lumbago pain is worse in the morning when the patient arises, and wears off as the day progresses, while the pain of a kidney lesion is usually better in the morning but becomes worse later in the day.

The second type of pain, renal pelvic pain, is that seen during an attack of kidney colic. This pain is always due to pelvic distention, and not to the actual passage of a rough calculus down the ureter as is so frequently thought. This pain can always be reproduced on urologic examination by over-distention of the renal pelvis through a ureteral catheter. Renal pelvic pain has some very definite characteristics. It is usually excruciating and knife-like; it is transitory, but recurs frequently; it radiates downward, along the distribution of the iliohypogastric and ilio-inguinal nerves.

There is a third type of pain which should be mentioned; pain arising from the ureter in intrinsic ureteral disease, such as ureteral stricture, ureteral tuberculosis, and ureteral tumors. There is nothing pathognomonic about the pain associated with these conditions. It usually occurs as a dull, abdominal ache, but the actual pathology is difficult to differentiate by the symptom of pain itself. It should be observed in this connection that when a ureteral calculus reaches the lower pelvic portion of the ureter, bladder symptoms often develop before the stone has actually reached the bladder. Urinary frequency, hematuria, and terminal dysuria may be present.

Urinary tract pathology may manifest itself clinically only by a gastro-intestinal syndrome. Nausea, vomiting, anorexia, constipation, occasionally diarrhea; one or several of these symptoms may constitute the clinical picture. Two factors underlie these gastro-intestinal manifestations. In the first place, these patients may have a renal stasis, with a resulting improper elimination of toxic products in the urine. Nausea and vomiting may merely reflect an additional attempt of the body to eliminate the toxic metabolites which ordinarily would be excreted through the kidneys. Secondly, there is a rich network of sympathetic nerves connecting the ganglion of the kidney and ureter with the ganglia of the splanchnic system, which in turn are connected with the sympathetic nerve supply of the stomach and the large and small intestine.

The diseases in which we find these symptoms most prevalent are: renal or ureteral lithiasis, pyelonephritis, hydronephrosis and hydro-ureter,

nephroptosis, ureteral stricture, and Bright's disease. However, it is in those cases where we encounter calculus formation in the kidney and ureter that we have the greatest incidence of gastrointestinal symptomatology. Many of these patients are treated symptomatically for prolonged periods, and often they have undergone some surgical procedure without relief. The urinary tract has frequently not been investigated at all.

Proper interpretation of abnormal constituents found in the urine is essential to accurate diagnosis. Hematuria is an extremely important urinary finding. Every case with blood in the urine which presumably arises in the upper or lower urinary tract should be studied very carefully. It is absolutely essential to do cystoscopic examination, together with bilateral ureteral catheterization and ureteropyelography, if one is to determine accurately the source of the bleeding.

Permit me to emphasize that this examination must be conducted while the bleeding is active—this is the proper time for such an examination. Cessation of active bleeding makes accuracy in diagnosis more difficult, and unless there is a contraindication, cystoscopy should be employed.

There are a variety of lesions which may be responsible for blood in the urine. Among the more important are tuberculosis, tumors, and calculi. Less common etiologic factors are trauma, hydronephrosis, movable kidney, kidney infarcts, ureteral strictures, and nephritis of a toxic or infectious origin. Both microscopic and macroscopic hematuria are also occasionally observed in appendicitis, acute or recurrent, where the inflamed appendix is in close proximity to the ureter. Pyuria is another urinary finding of major importance in differential diagnosis. It is essential to determine the source of the pyuria in a manner similar to that outlined for the detection of blood. This procedure requires the same thorough investigation as does the study of hematuria. The most frequent causes for pyuria are pyelitis, with or without calculus, hydronephrosis, ureteral stricture, and tuberculosis. Occasionally pus may appear in the urine from the spontaneous evacuation of an appendiceal or tubo-ovarian abscess through the bladder.

It probably would not be amiss here to direct your attention to proper methods of collecting a specimen of urine for examination. It is my honest belief that one cannot interpret properly the significance of pyuria when the patient brings in a voided specimen of urine. The physician himself should collect the specimen of urine when it is at all possible for him to do so. Many patients, especially women and young girls, can be spared the inconvenience and discomfort of urologic

study if a proper collection of the urine specimen is carried out. All urine samples, wherever possible, and especially in the female patient, adult or child, should be catheterized specimens. In the male, the anterior urethra should be thoroughly flushed with sterile saline or boric acid solution, and then the patient should void in three glasses. Frequently even this procedure should be supplemented by careful catheterization.

Finally, it should be emphasized that if accuracy is to be obtained in the differential diagnosis of the lesions to which we have referred, it is essential that careful cystoscopic examination be carried out. The usual bilateral catheterization of the ureters which can thus be done, enables the urologist to determine the presence of blood and pus; to do cultures, stains, guinea pig inoculations, and other bacteriologic studies; and to carry out functional studies on each kidney. Let us not lose sight of the great field of usefulness at our command in intravenous urography, which should be used as a routine in the diagnosis of all abdominal lesions. It will lead to earlier and more frequent recognition of such conditions as hydronephrosis, congenital dilation of the ureter, anomalies of the urologic tract, ptosis of the kidney, and right renal or ureteral calculus. It is of great assistance in cases of ruptured kidney or ureter. It will also be of invaluable assistance in those patients whose ureters cannot be catheterized or in whom cystoscopy is contraindicated.

#### CONCLUSIONS

1. Symptoms are not always reliable in determining the exact cause of a patient's complaints. Frequently they are actually misleading, and can cause considerable confusion. The disease may be in one organ and the symptoms may be referred to another.

2. Serious disease may be present in the urinary system with no sign of disturbance present in the usual urine analysis.

3. All right-sided abdominal pain is not necessarily organic in origin, and frequently is not the result of surgical pathology.

4. Only by employing every diagnostic aid at our command can we avoid the various diagnostic pitfalls and errors.

5. There is an undue haste in resorting to surgery in the treatment of many obscure ailments. If more time and more thorough investigation were devoted to the patient's complaints, many operations and much unnecessary suffering might be averted.

6. Closer cooperation between the general practitioner and the specialist will result in mutual benefit for both the physician and the patient, and



will often clarify situations which might otherwise prove extremely embarrassing.

**Author's Footnote:** I wish to express my thanks to Dr. Daniel Glomset and Dr. Herman Smith, for their valuable suggestions and assistance in the preparation of this article, and to the many authors mentioned in the bibliography.

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### TREATMENT OF ASYMPTOMATIC NEUROSYPHILIS\*

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Although the importance of findings in the spinal fluid of syphilitic patients has been recognized for many years, in fact since 1901 when Widal, Sicard and Ravaut, noted lymphocytoses in tabes and paresis, and Guillian and Paraut two years later noted an increase in protein of the spinal fluid, and the Wassermann and gold chloride tests were both discovered less than ten years after, it has been only in the last ten years that the significance of these positive findings in cases which do not present clinical evidences of neurosyphilis has been emphasized. Since about 1924 there have been increasingly numerous reports of asymptomatic neurosyphilis and as late as January 1935, O'Leary has called this form of central nervous system invasion, "the most significant manifestation" of neurosyphilis. The reasons which he gives for this statement are:

1. Asymptomatic neurosyphilis becomes clinical neurosyphilis if the treatment is insufficient.
2. The results of adequate and intensive treatment are good.
3. Early recognition and thorough treatment avoid the development of the late forms of neurosyphilis if adequate treatment is given.

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Moore and O'Leary have been most active in correlating studies of this type of infection, and much of the material of this paper is taken from their writings. It is interesting to note that there is little mention made of the condition in any of the standard textbooks or systems of medicine. The name which is relatively new defines the clinical state of the individual; infection of the central nervous system, proved by spinal fluid changes, without clinical signs or symptoms of the invasion.

Various authorities have shown that asymptomatic neurosyphilis appears in about the same percentage of cases as does symptomatic neurosyphilis. This percentage varies and may be as low as 20 per cent asymptomatic to 80 per cent symptomatic up to about equal percentages. This emphasizes the desirability of diagnosing the asymptomatic type. Of the asymptomatic cases it is to be expected that of the early group at least 50 per cent will later develop neurosyphilis, and of the late group the percentage is slightly higher for the development of clinical neurosyphilis. To recapitulate this last group of figures, the percentage of asymptomatic cases is as great as the symptomatic group and without treatment approximately 50 per cent of the former cases progress to the latter group.

There are three factors in the disease and its treatment which are important so far as the consideration of an individual case, its prognosis and treatment, are concerned; first, the period of time elapsing between the original infection and the diagnosis; second, the amount and degree of deviation from normal of the spinal fluid; and third, the type of treatment which has been given to the patient. These points will be discussed in some detail.

Moore emphasizes the importance of the time element in relation to infection and diagnosis and response to treatment. Why one individual should develop neurosyphilis and another not, cannot be answered. Among the factors which determine involvement of the nervous system are, inherent characteristics of the organism which may make it "neurotropic," the response in the development of antibodies to the infection in the individual, or protection which may come from treatment. During the first four years of infection, these factors are not static, and the infection may advance or recede. This first, uncertain period is called "early" in contrast to the "late" period when the more or less permanent findings develop. One may point out then, at this point, the fact that treatment during the early stage, if intensive may be expected to result in a cure with the more simple means of treatment. In the late cases, however, more failures will result from ordinary

treatment, and intraspinal treatment and fever therapy may be necessary.

It is of interest to correlate the findings of various investigators as to the incidence of invasion of the central nervous system. The Co-operative Clinical Committee feels that during the primary stage 30 per cent of patients have laboratory evidence of invasion of the nervous system. In the second stage of syphilis the percentage rises to 35 per cent, and in poorly treated cases it may rise to 56 per cent. Here again the time element must be emphasized. There seems to be a protective reaction in a few individuals so that the percentage of infection may drop, even without treatment. In other words there is apparently a spontaneous improvement in a certain number of cases, due it is felt, to some active immunity which develops against the spirochete.

All authorities emphasize the importance of the examination of the spinal fluid in every syphilitic patient. It is not sufficient that the Wassermann test alone be done. It is felt by O'Leary and Moore that the Wassermann test, cell count, protein reactions and the colloidal gold or benzoin tests should be done in every case and if necessary repeated. These authorities classify their findings of these factors into grades of severity of infection. At this time we will only mention that those fluids which show less deviation from normal than others, represent a lesser degree of infection and it is to be expected that these cases will respond better to treatment than other cases which show a greater deviation from normal. There is no definite relationship between blood and spinal fluid Wassermann reactions.

Treatment of asymptomatic neurosyphilis has been shown to give response in direct proportion to the regularity and continuity of treatment. By treatment one means courses of arsphenamine or neoarsphenamine in adequate dosage. These may be given simultaneously, or alternating arsenic with bismuth or mercury. Certainly there is no standardization as to the form of bismuth or mercury to be used. Arguments have been engaged in for some time as to the physical and chemical combinations of the heavy metals and their effectiveness. Each drug firm has its own especial type and among physicians there apparently is no unanimity as to which to use.

The Cooperative Clinical Committee has definitely outlined an optimum treatment in two recent articles. To generalize, their conclusions suggest the use of more than twenty injections of arsphenamine with accompanying heavy metal during the first two years of infection. The committee on treatment favors "continuous treatment" which is defined as uninterrupted treatment with

arsphenamine and heavy metal—so-called "overlapping" treatment. "Intermittent treatment"—which as a distinctive feature has rest intervals of a month or more, and "irregular treatment" which is absolutely irregular in time and therapeutic agency, give progressively poorer results.

O'Leary states that approximately 85 to 90 per cent of the patients respond satisfactorily to arsphenamine and heavy metal therapy. He does not state whether or not this includes spinal treatment by the Swift Ellis method. Mention should be made that O'Leary is impressed with the value of this latter technic and believes that it should be more generally used. For the remaining 10 to 15 per cent of cases, nonspecific fever therapy is advised. Unfortunately, this by its very nature, cannot be used widely since institutional care is usually necessary whatever form of heat therapy is used. O'Leary feels that immediate treatment with arsenic and heavy metals following the malaria episode is not necessary and that one can safely wait at least six months to observe what changes may occur. Other men use routine treatment immediately following malaria, and with others tryparsamide is popular. O'Leary states that cures may result in all but two per cent of asymptomatic neurosyphilitic cases if all of the various therapeutic attacks are used. Moore's figures are not as optimistic as those of O'Leary, although it is difficult to compare different groups of cases. However, Moore's patients did not seem to respond to treatment as well as O'Leary's.

One feature which Hopkin and Moore emphasize is worth noting at this time; namely, the prognostic significance of negative spinal fluid findings in early and late syphilis. They state that if the fluid at various intervals during treatment is negative, re-examinations at subsequent dates will be negative and so far as parenchymatous neurosyphilis is concerned its development is unlikely. In late syphilis it is to be expected that a negative fluid will remain negative, and that the patient will not develop neurosyphilis.

In conclusion then, we have emphasized in this paper the importance of spinal fluid examinations in all cases of syphilis. The frequency of invasion of the nervous system even when there is no clinical evidence of this invasion has been brought out, and lastly the fact that treatment must be governed by the spinal fluid response and results depend upon giving the patient that which is necessary to cause a return to normal of the spinal fluid.

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## INDICATIONS FOR SURGERY IN PULMONARY TUBERCULOSIS\*

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Our present knowledge of pulmonary tuberculosis teaches us that *rest* is the most important and the most successful remedial measure now available in the treatment of this disease. *Immobilization* of the diseased lung is the foundation of all successful treatment, whether it be by the application of intensive rest alone, or by the additional use of surgical measures further to assist in the relaxation of the diseased lung tissue. It is quite true that the application of bed rest and proper medical supervision are sufficient to bring about recovery in many early and in some advanced cases of pulmonary tuberculosis. Intensive rest, no matter how thoroughly practiced, can only reduce the mobility of the lung to a limited degree. The rest cure is a long-continued and laborious process, and many patients beginning with the best of intentions, fall by the wayside before satisfactory results are obtained. If cavities have already formed, recovery by rest alone is very often a failure. There may be a spread of the disease by way of the bronchus to other parts of the lung. Natural processes of healing may be unable to approximate the walls of cavities, and since absorption cannot take place in these fibrous cavities they remain open. Closure of productive cavities lined by fibrous tissue has proved very unsatisfactory by the use of bed rest alone.

If we are to be successful in our treatment, some other method must be chosen in our effort to close these open cavities. Delay does not cure; it only prolongs the length of the treatment, and reduces the chances of complete recovery. The prime object of this surgical procedure will be to put the diseased lung at complete rest as nearly as possible, the success of the treatment being in proportion to the degree of collapse of the lung obtained, the degree of collapse being governed by the type and extent of the operation deemed

advisable in each individual patient. Many types of "surgical collapse" are in use. In this discussion we shall consider only artificial pneumothorax, phrenicectomy, and thoracoplasty.

### ARTIFICIAL PNEUMOTHORAX

The most simple and efficient way to collapse a diseased lung is by the production of an artificial pneumothorax. Gas or air is permitted to enter into the pleural space until it is partially or completely filled. This air will completely surround the elastic lung and cause it to collapse and become less in volume. The amount of air used depends upon the amount of collapse desired. The advantage of this method of collapse over all other methods of treatment is that after healing has occurred the lung may be permitted to re-expand and again function normally. Every patient considered suitable for collapse therapy should be granted a pneumothorax trial. Every patient with cavity formation should be permitted an attempt at the establishment of a pneumothorax unless there are some special contraindications. Severe hemoptysis, when it can be certainly known from which lung the bleeding comes, is an indication for artificial pneumothorax. If the hemorrhage can be temporarily controlled by other means, it is probably better to wait for a few days before the pneumothorax is established. An extensive and progressive disease of one lung is another indication for pneumothorax.

Exudative types of tuberculosis are no contraindication to pneumothorax. The air space separates the diseased lung from the chest wall, even though the consolidation does not permit a perfect collapse. When the consolidation softens and excavation takes place a better collapse is obtained. In the meantime, the general condition of the patient is greatly benefited. It may be true that more complications occur in patients with exudative lesions treated with pneumothorax, but if these patients do not do well with this treatment, the chances are that they would have done much worse without it. Some physicians treating a large number of tuberculous patients advocate the aspiration of fluid in cases of tuberculous pleurisy with effusion, and the replacement of this fluid with air. They then continue the treatment as a "controlled" pneumothorax. This would seem to be a very logical procedure, especially in cases where an active lesion is known to be in the lung itself. This kind of treatment should be undertaken only where the patient is to be hospitalized and kept under the closest observation, with repeated fluoroscopic examinations, and a most careful study as to the content of the fluid removed.

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Disease of the opposite lung was formerly looked upon as a contraindication to artificial pneumothorax upon the side of the most diseased lung. By compression of the most severely infected lung, the patient may become sputum free; severe toxemia will be lessened, the temperature lowered, and the general resistance greatly increased. As a rule, when the pulmonary disease is acute, the mediastinum is rather flexible. When pneumothorax is produced on one side the air pushes the mediastinum to the opposite side, causing considerable immobilization with venous stasis of the better lung. This often occurs with a negative pressure in the pneumothorax. Patients in sanatoria today, with moderately advanced and advanced tuberculosis, are receiving so much benefit from this type of immobilization that it is being used much more frequently than before. Patients whom we once considered unfit for surgical intervention are now being treated very successfully.

In the treatment of minimal tuberculosis we have all erred in not using pneumothorax early or often enough. Many patients have lost their best chance for recovery before pneumothorax was begun. A minimal progressive disease should be an indication for pneumothorax. This is always true in boys and girls of high school age. If a patient under treatment with the best sanatorium regimen shows progressive disease in x-ray films, a pneumothorax is indicated, even if the disease is minimal. Watchful waiting until the disease has progressed to excavation, bacilli in the sputum, and extensive disease with the formation of adhesions fastening the pleura to the chest wall, before a pneumothorax is contemplated, is just as bad as waiting for an appendix to rupture before performing an appendectomy. If progressive disease could be discovered before destruction of lung tissue has occurred, before sputum containing tubercle bacilli appear, a pneumothorax would settle our difficulty and give the patient the chance for recovery which is his due.

#### PHRENICECTOMY

Phrenicectomy is no doubt the most abused operative collapse measure in use today. The physician, in his zeal to effect a more rapid cure, has probably stretched the indications for this operation too far. The surgeon has grasped at a reasonably new operative procedure in the hope that this was the long hoped-for panacea for all those tuberculous individuals for whom pneumothorax was denied.

It is very discouraging for a physician, whose work is among tuberculous individuals, to discover at the time of operation that a patient who was considered a particularly suitable case for

pneumothorax, is to be denied this assistance because of an adherent pleura due to an old pleurisy. When we first began to use phrenicectomy the disappointment of the patient probably caused both the physician and the surgeon to institute this operation for removal of the phrenic nerve in cases which were not exactly suitable. Each was influenced by his enthusiasm for a new operation, the results of which he hoped would be all he desired of it. Experience has shown that this operation is not a "cure-all," and that it has very definite limitations which must not be ignored or passed over lightly.

Certain definite indications are present in patients suitable for phrenicectomy. Where pneumothorax is indicated and cannot be performed because of an adherent pleura and the inability to find a free pleural space, the condition of the contralateral lung must be considered very carefully. Fresh, active, or exudative lesions in this lung constitute contraindication. If there is disease in the contralateral lung it must be old, inactive and not extensive. Phrenicectomy should be performed before every thoracoplasty. In every patient where a thoracoplasty is indicated and anticipated, a removal of the phrenic nerve should be done first. This will provide as much collapse as possible before thoracoplasty. It will reduce the amount of surgery to be done by lessening the length and number of ribs to be resected. It will give the mediastinum an opportunity to readjust itself. It will give the heart an opportunity to accommodate itself to increased activity as a result of the change in position. So much improvement may follow this operation that further surgery will not be necessary. Fresh apical cavities often heal, and absorption of other lesions occurs, especially where there is a marked elevation of the diaphragm. Three to six months should elapse after this operation before thoracoplasty is considered.

Phrenicectomy may be used as a test operation to prove the ability of the better lung to tolerate further surgery. A suspicious activity in the better lung may be tested in this manner, although the test is not considered dependable. When empyema occurs as a complication of pneumothorax, a thoracoplasty will probably be necessary sooner or later. A resection of the phrenic nerve is indicated early in the course of the empyema, before dense adhesions have formed to fix the diaphragm and hold it down. The elevation of the diaphragm will result in a smaller pleural space, will give better opportunity for the re-expansion of the collapsed lung, and will give cause for less destructive surgery if a thoracoplasty is necessary later.



Toward the end of treatment with pneumothorax, when the lung is being permitted to re-expand, a resection of the phrenic nerve may help to conserve the results already obtained by the collapse. Where the lung was originally very badly diseased before it was collapsed, the relaxation of the diaphragm will diminish the amount of space to be filled by the re-expanding lung. By relieving the tension on healed lesions and scar tissue, the tendency to reactivation of quiet lesions, reopening of cavities, etc., is lessened. When a badly diseased lung under treatment with pneumothorax is permitted to re-expand, the mediastinum and heart are often pulled over in Nature's effort to refill the pleural space. The shifting of the heart may cause some distress for a time. Elevation of the diaphragm will give much relief in these cases. Phrenicectomy is an operation of great value when used judiciously, but we must never forget that once performed the results are permanent and cannot be recalled.

#### EXTRAPLEURAL THORACOPLASTY

The first objective in the treatment of pulmonary tuberculosis is to eliminate all cavities, and to make the patient free from all sputum which carries tubercle bacilli. Many individuals have the wrong impression of a thoracoplasty operation. To them it is a shocking affair, resulting in marked deformity, with a high mortality rate. This conception is entirely erroneous. If patients suitable for this operation are properly chosen and the surgery is properly done, the deformity is not noticeable, and the mortality rate is not high.

Patients suitable for this operation are limited in number. Thoracoplasty should never be used in hopeless cases as a last resort. The benefits to patients for whom this operation is necessary would be multiplied many times if we always performed it as soon as it was indicated, instead of waiting and making use of it after a further advance of the disease has made the outcome and results doubtful. A typical and so-called textbook case chosen for thoracoplasty would be a patient with a cavity, with the disease stationary, or at least not progressive, with a good contralateral lung, a patient upon whom pneumothorax has not been successful because of adhesions or adherent pleura, and where the phrenic operation had not obtained satisfactory results.

The best results are obtained in patients with chronic fibrous tuberculosis, where natural processes of healing have lessened the size of the hemothorax, pulled the mediastinum over, immobilized the wall of the thorax, and elevated and fixed the diaphragm. When cavities are present,

the thicker and more fibrous the wall, the less favorable will be the results. In practically all cases of empyema which occur during the course of a pneumothorax, a thoracoplasty later becomes necessary. Where partial pneumothorax has not proved satisfactory for collapse, and a bulge of the mediastinum toward the opposite side is present, either the pneumothorax should be permitted to re-expand, or the mediastinum stiffened before the operation.

Briefly, thoracoplasty is contraindicated in patients with disease of the contralateral lung, unless it is arrested and not extensive; patients with low resistance who are poor surgical risks; patients with a progressive type of disease; and patients with the exudative type of tuberculosis.

#### CONCLUSIONS

1. Immobilization of the diseased lung is to be desired in the treatment of pulmonary tuberculosis.
2. Artificial pneumothorax is the most suitable method of collapse if it can be accomplished.
3. Phrenicectomy may be used where pneumothorax is indicated and cannot be performed. This operation is of great value when used judiciously.
4. Extrapleural thoracoplasty is a procedure of great value in the elimination of old, fibrous cavities.

#### TUMORS OF THE BREAST\*

BERNARD J. DIERKER, M.D., Fort Madison

If we hope to discuss intelligently the diagnosis and treatment of tumors of the breast it is important to emphasize some fundamental facts about the breast itself. Embryologically, the breast has its origin from the ectoderm. It is really a highly specialized sweat gland or series of sweat glands which have taken on the specific function of lactation.

The anatomy of the breast is fairly simple. It is located on the anterior portion of the chest wall where it overlies the pectoralis major muscle, the pectoralis minor muscle, the serratus magnus muscle, the sternum and a portion of the sheath of the rectus abdomenus muscle. It is in immediate contact with the heavy fascia that overlies these muscles. This fascia is important in tumor operations. The gland is covered by integument or skin and is open to the outside by means of the nipple, which is made up of the nipple proper and the areola, where numerous sweat and sebaceous glands are found. The openings into the nipple lead into the ampulla into which the various ducts empty. There are usually fifteen or twenty of

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these ducts. Following the ducts outward you come to the acini or gland proper where the secreting cells are found. Between these we have a supporting framework of connective tissue with muscle fibers under the areola and fine fibrous bands extending to the nipple and skin. These are important in that they play a leading part in retraction of the nipple in carcinoma and skin pitting. In addition we have a varying amount of fat tissue.

The skin origin of the breast makes it easy to understand and to remember the blood and nerve supply. I will only comment on the intercostal branches of the vessels through the chest wall. Occasionally blood-formed metastases take place this way into the chest and upper abdomen.

The lymphatic drainage is very important especially in carcinoma because it points out the direction of metastasis, the main lymphatic channels coming up the lateral border of the breast to the main glands of the axilla. The drainage varies considerably. At times drainage is directly into the supraclavicular nodes or into the nodes high in the axilla under the pectoralis major and pectoralis minor muscles. Sometimes a single gland is found under the very edge of the pectoralis major muscle which shows early involvement. They are found posteriorly under the margin of the latissimus dorsi. Lymphatic glands may lead across to the opposite breast and axilla or over the fascia of the rectus to the sternal angle.

There is one other important factor and that is the evolutionary change. The breast undergoes very definite changes during the normal life of a woman. All the elements and structures are present at birth, but at this time they are in an infantile form. At puberty we have the development to the matured functioning type of breast, and even during this time we have the evolution of lactation. There is a gradual retrogressive or involutional change so that after menopause we again have a non-functional type, that is markedly atrophied as far as gland tissue is concerned. These changes undoubtedly play a very great part in all diseases of the breast and especially in tumor formation. We would expect a different type of pathologic process in the infantile period, the functioning period, and the atrophic period of the female breast.

Probably the most generally accepted classification of breast tumors is that of Sir Lenthal Cheate as follows:

#### HYPERPLASIA AND NEOPLASIA OF THE BREAST

##### I. Epithelium

###### A. Desquamative Hyperplasia

1. Mazoplasia
2. Cystiphorous

##### B. Neoplasia

###### 1. Benign

- a. Fibro-adenoma
  - Subepithelial
  - Pericanalicular
  - Periacinous
- b. Pure adenoma papilloma

###### 2. Malignant—Carcinoma

##### II. Connective Tissue

###### A. Benign

1. Fibro-adenoma
2. Fibroma
3. Lipoma
4. Myxoma
5. Angioma

###### B. Malignant—Sarcoma

However, for our present purpose of practical handling of breast cases, I believe the simple separation into benign and malignant cases is more satisfactory. Between these I would like to place another group of borderline or premalignant cases. This should represent all cases of which we are uncertain. Clinically, this would be a very large group, because a routine examination of a breast tumor will leave a large number in the uncertain class. Pathologically, this group would be narrowed to a very small one, and yet there are always some in the uncertain class even under the microscope.

On the benign side I am going to take up first, cystic disease of the breast. I am not referring here to cystic degeneration of a pre-existing tumor, such as a fibroma or a carcinoma, but rather to primary cystic disease. It may be necessary here to digress a moment and say a word about so-called chronic mastitis. This is probably only an evolutionary process caused by desquamation and degeneration in the ducts with at times some true inflammatory change. As a rule a definite tumor is not present, but there is an irregularity or nodular tendency. Cheate considers it the first stage of cystic disease. Cysts may be multiple or single as the "blue-domed cyst of Bloodgood." Usually with more careful pathologic study a single cyst will be shown to have numerous small cysts about it.

This brings us to the next type of benign tumor, the papillomas, which may be simply duct papillomas when found in the ducts, or the so-called papillary cyst adenomas when found within the cysts. They may be single or multiple; are generally small and scarcely palpable, but occasionally one becomes fairly large. At times they may almost fill an entire duct and its branches. Their presence is often spoken of as Schimmellbusch's disease. The nodular shotty feeling breast is supposed to be characteristic of this. It is here that



we have our first counterpart in malignancy, the papillary cyst adenocarcinoma. It is claimed that 20 per cent of all papillomas are malignant or undergo malignant change. It is impossible to distinguish these early clinically.

This seems to be a very proper place to bring up another important symptom; that is, the bleeding nipple. No symptom has been more misunderstood or wrongly interpreted. I have seen breasts sacrificed and treated as malignant simply because of a bleeding nipple. On the other hand reliable pathologists and diagnosticians have made the statement that a bleeding nipple is never malignant. Both statements are misleading. A bloody or sanguineous discharge from the nipple is generally caused by a papilloma in a duct or possibly in a cyst emptying into a duct. Reports show the incidence of malignancy to be about 20 per cent. This is true whether or not a palpable tumor can be felt.

In the next classification we have the benign fibroma which may have either a connective tissue or an epithelial origin. It is a hard circumscribed lump. The adenofibroma is very similar but has in addition glandular structure. It is well encapsulated. It occurs in younger women and is usually benign. Opposite this we have the adenocarcinoma on the malignant side which may be hard to distinguish from it. There are numerous other benign tumors such as the lipoma, simple hypertrophy areas of fat necrosis, hematomas, myxomas, dermoids, echinococcus cysts, tubercular, and cephalitic tumors to say nothing of inflammatory lesions.

On the malignant side we have already mentioned papillary cyst adenocarcinomas and simple adenocarcinomas. We do not have time for pathologic detail. The scirrhus carcinoma is probably most common, particularly in older cases, while the medullary carcinoma is more common in the younger decades, but when it does occur it is much more malignant. The most rapid growing forms are sometimes spoken of as inflammatory carcinomas. In some of these cases the growth is so rapid that the breast takes on a red inflammatory-like appearance. Occasionally the entire breast seems to become involved simultaneously, the so-called *cancer en cuirasse*. Incidentally this often follows untimely massage of a cancerous breast. These latter are almost hopeless types. We now have an interesting and valuable grading of malignant cases according to height of malignancy. It is a great help in prognosis.

#### DIAGNOSIS AND TREATMENT

Under this heading, the most important steps are to discover the breast tumors early, to differentiate promptly the malignant from the benign

type, and to take prompt and adequate steps to eradicate the malignant process.

It is unfortunate that the average patient with cancer of the breast comes to the doctor too late for a cure. How are we going to make them come in early enough to give treatment a fair chance? Much has already been done to enlighten the public to the necessity of reporting all breast lumps to the family physician. This is being done through the radio, public health talks and the newspaper. I feel that we, the rank and file of medical men, are to blame in many cases. We have not made enough routine breast examinations and are not familiar with methods of breast examination. I have known a number of women who were told that they had a breast tumor and even advised to have the breast removed, simply because there was a tender area in the breast. However, no tumor could be found. On the other hand some have come in with large lumps which were obviously tumors who had been treated expectantly. I feel that a careful breast examination should be included in every routine physical examination, and in every obstetric case. The patient can be taught to feel for suspicious lumps, with the flat of the hand over the breast and against the chest wall.

After a tumor is discovered we must determine its nature. The age of the patient and the rapidity of growth give us some idea. We should look for attachments to the skin and underlying tissue, retraction of nipple or tugging on skin, a bloody or sanguineous discharge. The benign growth is usually encapsulated; the malignant growth tends to infiltrate. More recently we have used illumination with cold light. This helps to differentiate the cyst from the firm type of growth, especially malignant forms. Even x-ray plates have been used recently with some success in diagnosis.

In spite of all our vigilance, a large number of cases must remain in the clinically uncertain group. What then is to be done? We can explore and remove all tumors of the breast which are definitely in the benign class, but we should prove that they are benign by subsequent pathologic sections. In the clinically uncertain group it is permissible to excise and explore every case, but we should be prepared to do either a simple plastic removal, a simple mastectomy, or a radical mastectomy. If the lump is small, it can be removed in one piece and examined microscopically. If the growth is large it may be necessary to excise a small piece for study.

I want to mention the treatment of cases of carcinoma. I have said a radical mastectomy should be done. I will exclude those cases which are obviously inoperative; that is, those cases

which have metastasized beyond our reach. A radical mastectomy must include the following items: wide excision of skin, removal of pectoralis major and pectoralis minor muscles, complete dissection of axilla back to serratus magnus muscle, and the fascia over the sternum beyond midline and down into the abdomen clearing the sternal angle. Anything less than this is not a radical mastectomy.

Mention should be made of radium and x-ray therapy in the treatment of these cases. I feel that radiation is a proper and invaluable adjunct to surgery, but that its use should be restricted to those physicians who are qualified to practice this specialty.

### ABDOMINAL DRAINAGE—ITS USE AND ABUSE\*

EDWARD J. HARNAGEL, M.D., Des Moines

It will be my effort to discuss briefly the principles of abdominal drainage and their relation to modern clinical usage. The subject is very old, almost as old as abdominal surgery itself, and it boasts a voluminous literature. Therefore details of general acceptance and common knowledge will here be taken for granted.

In the first place the abdomen is an elastic container and any contents either normal or abnormal will be forced out if there is an available exit. This is particularly true of the central part but less true of the pelvis and upper abdomen where much of the wall is rigid. That is why an abscess in the central abdomen will drain perfectly through an opening from any angle while one in the pelvis or under the costal wings is more favored by gravity.

The point upon the abdomen where a drainage opening is made will necessarily depend very much upon the location and type of the accumulation. In the case of a walled-off abscess it is often desirable to incise directly where it touches the abdominal wall, to avoid opening and contaminating the closed-off peritoneal cavity. This is especially urgent if it is suspected that the infection is unusually virulent, also if the patient is very ill or very much reduced. In cases, however, that are seemingly more favorable or if more than a stab-wound is needed it is best to make mid-rectus or midline incisions, the better to avoid postoperative hernias. Any considerable wound made external to the rectus in the presence of drainage and infection is fairly certain to be pulled apart by the lateral muscles and postoperative hernia will result; this is, moreover, one of the more difficult types of hernia to repair.

Pelvic abscesses originating in chronic tubal infection should be approached suprapubically for several reasons. Such abscesses have thick walls composed of abdominal viscera which would easily be punctured by a cul-de-sac stab; also the infection usually is not virulent and removal of the tubal sacs at the same operation is highly desirable. However, acute pelvic abscesses arise from more virulent and non-tubal infections, the pus is thin and large in amount, and it would be a dangerous contamination for the general peritoneal cavity, while at the same time drainage by way of the cul-de-sac is easy, safe and peculiarly efficient.

Subphrenic abscess, either right or left, is always secondary, nearly always of abdominal origin when on the right side, arising from perforation of a duodenal ulcer or from suppurative appendicitis, and of perirenal origin on the left side. The patient is usually already seriously reduced and is likely to be too sick to stand much surgery. My preference is a simple incision at the costal border and a rubber tube; I have done this even under local anesthesia but general gas anesthesia is better especially if the abscess is difficult to reach. There is little or no danger from soiling the peritoneum as the infection was initially of abdominal origin. The two-stage transpleural operation is easy for the surgeon but severe for the patient.

The non-suppurative exudates and transudates provide an entirely different set of drainage problems. These fluids continue to accumulate through weeks and months, their amount and character depending upon the diseases causing them. None of them can be kept drained out by tubes or other contrivances because these are always promptly walled off and closed within twenty-four hours; hence evacuation by incision or trocar must be repeated as necessary.

In tuberculous peritonitis the effusion is rather heavy and plastic. One or at most two evacuations will suffice, especially when combined with deep x-ray therapy. In abdominal carcinomatosis or other malignant conditions it is seldom necessary to drain the fluid more than once or twice. It is proper to recall at this point that these fluids are derived mostly from the omentum, and as malignant or tuberculous processes quickly knot up and destroy the omentum, the filling up is so much lessened that tapping is no longer needed. In the Talma-Morrison operation for the ascites of hepatic cirrhosis, the omentum likewise becomes a knotted mass of sclerotic tissue; thus it is probably the constriction of the omental vessels rather than the development of an envisioned collateral circulation that lessens the transudation

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after this operation. In my next case I plan to substitute a clean removal of the entire omentum.

Drainage following abdominal operation may be imperative and unanimously approved or it may be clearly unnecessary by common concurrence. In the one case everyone would drain, in the other no one would drain; both groups are thoroughly standardized. Between these extremes there spreads an infinite variety of cases each of which presents its own individual problem. Every appendix that shows a little gray necrosis especially if it has an odor, or one that is thickly coated with moist fibrin puts the surgeon into a quandary whether to drain or not to drain. Pus tubes that might or might not contain an active infection, and panhysterectomies are likewise uncertain situations. Thus we have not as yet developed an absolute method of detecting an infectious contamination. Our grandfathers, recognizing this same limitation, naively proposed the sophism "When in doubt, drain," thus legalizing doubt, and there has been a great deal of doubting ever since. Some surgeons doubt more than others. That "drainage is safer and does no harm" is a more modern and a more mischievous fallacy. As an off-set an old teacher and excellent surgeon for years advised his students, "When in doubt, don't drain." In the interest of the patient, wise-cracks and half-truths do not fill the place of serious individual thought and study. The best surgery drains all that are necessary and the fewest number in which it is not necessary.

Tuberculous lesions within the abdomen must never be given postoperative drainage, because they will not drain satisfactorily and, also, very often a widespread combined infection will result. Even caseous collections and cold abscesses should merely be evacuated and wiped out carefully with gauze, dusted lightly with iodoform or some other mild antiseptic, and then closed without packing, rubber tissue, tubes, etc.

Drainage after uncomplicated cholecystectomy continues in debate. Possible bile leakage is the hub of this merry discussion; that is, leakage from the stump of the cystic duct or from the gallbladder bed or from an anomalous duct that was unknowingly cut. It should be assumed that the surgeon is sure he securely ligated the cystic duct, and that he did not dissect too roughly or too deeply into the liver about the gallbladder. In more than half the cases one can be absolutely certain that there will be no bile leakage. The mere spilling of yellow, black, tarry, or colorless bile during the operation, whether it be a little or all there is in the gallbladder, does not of itself demand drainage since all such bile is non-infective. Again we hear that "drainage is safer and

does no harm" and this usually from the operators who boast of boldly dropping the appendix stump without suture or covering. This is the worst part of the abdomen to form disabling post-operative adhesions, proof of which is frequently seen in the drained cases. Also, the postoperative course in cholecystectomies closed without drainage is altogether more mild than those that are drained even with a simple rubber wick; this difference is so striking that few surgeons ever return to routine drainage after having tried segregating their cases.

Special drainage of special viscera or ducts within the abdomen usually involves individual problems in each type of case. Moreover, the technical details often deserve consideration quite beyond the scope of general abdominal drainage. Hence this field is for the present reserved.

The materials used in abdominal drainage may be suited to the surgeon's preference, they may be plain or fancy as desired. Nature is less finicky and requires only an unobstructed outlet. Whatever the materials or contrivances it is of greater importance to remove them at the earliest safe moment in order to minimize the resultant adhesions.

In conclusion let me re-emphasize the basic principles of abdominal drainage; let me urge individual consideration for every case instead of obsolete epigrams or deadly routine; let me recall that unnecessary drainage induces about the same adhesions as necessary drainage; let me again warn against drainage of tuberculous lesions of the abdomen or pelvis; and let me repeat that transudates must be aspirated and not drained.

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## CONTINUOUS SUBARACHNOID DRAINAGE FOR INFLUENZAL MENINGITIS

By Means of a Ureteral Catheter and an Autogenous Vaccine

HARRY A. STRIBLEY, M.D., Dubuque

My purpose in this report is to present a case of influenzal (*Haemophilus influenzae*) meningitis in which a complete recovery was made during treatment with continuous subarachnoid drainage, by means of a ureteral catheter and intramuscular injections of an autogenous vaccine. Conclusions should not be drawn from a single case. This type of meningitis is considered almost invariably fatal, and a successful recovery by continuous subarachnoid drainage and an autogenous vaccine seems worth reporting. Almost daily spinal punctures were being made until I read the report of continuous spinal drainage, by Love\*

\* Love, J. Grafton: Jour. Am. Med. Assn., civ:1595 (May 4) 1935.

where he described his technic of continuous drainage by using a large 13 gauge puncture needle (Barker's) and passing a 5 French, flute-tipped ureteral catheter and leaving it in place. In my patient I had to insert the catheter on three different occasions. The first time it remained in place four days. In about two days it was re-inserted. This time it remained in place five days. After it was inserted the third time, it remained for thirteen days, making a total of twenty-two days of continuous subarachnoid drainage. The catheter drained directly into a bottle pinned to the side of the bed. The patient was cooperative and the tube did not have to be cut off short. When the patient complained of too severe a headache, the end of the ureteral catheter was clamped off for a few hours with a small hemostat. The drainage of the spinal fluid always decreased in amount after the catheter had been in place forty-eight hours. Forced fluids and normal saline, as well as glucose, were administered on several occasions during drainage. Hexamethylenamine was given by mouth empirically. The organism was morphologically and culturally *Haemophilus influenzae*. The organism did not grow on the ordinary media, but did grow extensively on a blood agar medium.

#### CASE REPORT

The patient, a boy over seventeen years of age, returned from a day's fishing trip on May 1, 1935, feeling tired and complaining of mild frontal headache. The following day his mother stated that he did not act like himself, was peculiar, refusing to eat and remaining in bed. His queer actions lasted about five days when he broke out with a large crop of herpes on the right cheek, started to run a fever, was irritable and listless and complained again of headache. He would get up for a few hours, sit quietly about, walk around the house and then go back to bed, feeling tired and exhausted. He would complain of headaches, several times daily. These symptoms continued irregularly for several days; one day he would be feeling fairly well, the next day not so well, then restless and listless. On May 10, 1935, his temperature was 102 degrees. Examination revealed very little, hardly more than a large crop of herpes on the right cheek; tonsils and pharynx were hyperemic, otherwise negative. For the following two weeks he was up and down with no change in his symptoms. On May 27, 1935, he was seen and advised to go to the hospital for observation because the neck seemed slightly rigid and there was a doubtful Babinski reaction on the right side. His temperature was about 101 degrees. There was no evidence of an enlarged spleen, diplopia, dimness of vision, or acute or chronic otitis media.

He entered St. Joseph's Mercy Hospital, Dubuque, Iowa, on May 28, 1935. When he entered his temperature was 102.4 degrees, pulse 96, white blood count 6,100, with 61 per cent polymorphonuclears, 32 lymphocytes, six per cent mononuclears, and one per cent basophiles. A spinal puncture was performed. The fluid was under considerable pressure, very cloudy, 4,000 cells, 92 polymorphonuclears, eight per cent lymphocytes, globulin three plus. No organisms were seen on the smear but many colonies grew on a blood culture medium. After the spinal puncture all the reflexes seemed normal, possibly slightly hyperactive. The suspicious Babinski reaction disappeared and the slight rigidity of neck was not so marked. The physical examination was practically negative except for the slight stiffness of the neck. The eye-grounds, ears and sinuses, etc., were examined by Dr. H. G. Langworthy, who reported as follows:

"Right pupil reacted normally to light and accommodation. Eye muscles, normal. Disc, mildly but definitely reddened, especially the nasal side. Veins, somewhat full. Edges of disc not clear cut and slightly blurred. No papillitis but physiological pit filled in. Left disc, more definitely reddened as a whole than right. Edges more blurred. Veins slightly full. No actual papillitis but normal physiologic pit filled in. Slight contraction of both visual fields, more marked in left eye.

"The left eighth nerve was definitely affected—high tones as shown by Galton Whistle being decidedly diminished. Trans-illumination of sinuses, negative."

Dr. L. G. Ericksen, roentgenologist, reported as follows:

"X-ray of skull shows no evidence of pathology of any kind. Sinuses are not visualized."

During the first four weeks of his stay in the hospital, the temperature was very irregular. Some days it would reach 102 degrees and over, on other days about 99.6 degrees; the pulse would go up with temperature varying from 68 to 116. Two days after the first injection of vaccine, the cell count rose to 2,900 cells and then gradually declined. The autogenous vaccine was administered in very small doses every other day, then every three days, etc. The dose was started with one-tenth of a cubic centimeter and gradually increased. The vaccine was made from a special blood serum. It contained 400 million organisms per cubic centimeter. After the ureteral catheter was removed on July 15, 1935, the patient showed a steady improvement and it was not considered necessary to re-insert it. The vaccine apparently was taking effect; the patient looked much better, felt better, and the headaches had disappeared.



During the latter part of July he was permitted to be up and around. He was finally discharged on August 3, 1935. The general examination was negative except that the visual fields were still slightly contracted. The vision was normal in both eyes and the discs were rapidly approaching

normal. The left auditory nerve involvement cleared up entirely. He is still losing patches of hair, but gradually gaining in weight. Altogether he had lost twenty-eight pounds of weight.  
Below is a table of the spinal fluid findings and treatment while the patient was in the hospital:

SPINAL FLUID CHANGES DURING HOSPITALIZATION

Date	Spinal Fluid	Treatment	Culture (Blood Agar)
5/28/35	4000 cells, 92% polymorphous leukocytes, 8 lymphocytes, globulin 3+	Spinal Puncture	
5/29/35	2400 cells	Spinal Puncture	Many colonies of Haemophilus influenzae
5/30/35	No cell count made of spinal fluid. The white blood count 7600.	Spinal Puncture	Blood culture negative for organisms.
5/31/35	3500 cells	Spinal Puncture	Many colonies of Haemophilus influenzae
6/2/35	1500 cells, globulin 3+, sugar 20 mgs. Polys. 90%, lymphocytes 10%.	Spinal Puncture	No report on culture.
6/4/35	Cells not counted	Spinal Puncture	Not cultured.
6/5/35	1461 cells.	Lumbar puncture not performed.	Not cultured.
6/6/35	666 cells.	Spinal Puncture.	Not cultured.
6/8/35	940 cells.	Spinal Puncture.	Many colonies of Haemophilus influenzae
6/10/35	1050 cells, 84% polys, 16% lymphocytes, globulin 4+	Spinal Puncture	Not cultured.
6/12/35	Cells not counted.	Spinal Puncture.	Not cultured.
6/13/35	1000 cells.	Spinal Puncture.	Not cultured.
6/14/35	4000 cells, globulin 4+.	Spinal Puncture.	Not cultured.
6/15/35	2000 cells, globulin 4+.	Spinal Puncture.	Many colonies of Haemophilus influenzae.
6/16/35	Cells not counted.	Spinal Puncture.	Not cultured.
6/18/35	590 cells, globulin 3+.	Under local anesthesia continuous subarachnoid drainage started with ureteral catheter in lumbar region.	Not cultured.
6/19/35	600 cells, globulin 3+.	About 450 c. c. cerebrospinal fluid drained in 24 hours.	Not cultured.
6/20/35	1800 cells.	About 850 c. c. cerebrospinal fluid drained in first 48 hours.	Not cultured.
6/22/35	Cells not counted.	Ureteral catheter became loosened and removed. Had remained in place 4 days. Drained about 1250 c. c. during 4 days time, since tube was inserted on 6/18/35.	Not cultured.
6/24/35	2000 cells, globulin 4+.	Ureteral catheter re-inserted under gas anesthesia lumbar region.	Not cultured.
6/26/35	2050 cells.	About 400 c. c. cerebrospinal fluid drained in 24 hours.	Not cultured.
6/27/35	1600 cells.	About 700 c. c. cerebrospinal fluid drained in 48 hours.	Still many colonies of Haemophilus influenzae.
6/28/35	311 cells.	950 c.c. drained in 72 hours.	Not cultured.

<i>Date</i>	<i>Spinal Fluid</i>	<i>Treatment</i>	<i>Culture (Blood Agar)</i>
6, 29, 35	Cells not counted.	Catheter loosened again—removed (remained in place 5 days). Drained about 1250 c. c. since tube was inserted on 6/24/35.	Not cultured.
7/2, 35	459 cells.	Catheter re-inserted under gas-ether anesthesia in lumbar region.	Not cultured.
7, 6, 35	109 cells, globulin 2+.	In 3½ days, 1,000 c. c. cerebrospinal fluid drained.	Not cultured.
7/7, 35	106 cells, globulin 2+.	About 1250 c. c. spinal fluid drained during past 5 days.	Not cultured.
7/9, 35	Cells not counted.	.1 c.c. of a 400 million autogenous vaccine per c. c. intramuscularly.	Many colonies of <i>Haemophilus influenzae</i> .
7/10, 35	Cells not counted.	Temperature rose after first injection of vaccine. Drained about 1800 c.c. of spinal fluid since tube was inserted on 7/2/35.	Not cultured.
7/11, 35	2900 cells.	.1 c. c. of autogenous vaccine intramuscularly.	Not cultured.
7/12, 35	1000 cells.	Catheter still in place and draining.	Many colonies of <i>Haemophilus influenzae</i> .
7/13, 35	Cells not counted.	.15 c. c. autogenous vaccine.	Not cultured.
7/15, 35	1560 cells	Catheter loosened and removed. Had been in place continuously for 13 days. 2600 c. c. to 3000 c. c. drained during this time.	Not cultured.
7, 17, 35	Cells not counted.	.2 c. c. autogenous vaccine.	Not cultured.
7/19, 35	24 cells, globulin—slight trace.	.25 c. c. autogenous vaccine.	No report on culture.
7, 20, 35			Practically no organism grew on culture.
7, 31, 35	14 cells, fluid clear, 96% lymphocytes, 4% polys., globulin-negative.		No organisms grew on culture after 3 days.

## CONCLUSIONS

Continuous subarachnoid drainage seems to offer favorable results in this type of meningitis and when the organisms can be grown culturally, an autogenous vaccine may probably add greatly to the merits of the treatment. It is difficult to evaluate in this case which was the more beneficial in the patient's recovery, i.e., the continuous subarachnoid drainage, the autogenous vaccine or the combination of both.

## HYPERTENSION AND BRAIN TUMOR

## A Case Report

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and

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The incidence of hypertension and brain tumor is not of unusual interest but the features of each

entity can confuse the diagnosis unless extreme caution is exercised. It is with chagrin that two of us collaborate in the report of this case, but it is our opinion that such a confession may serve to illustrate certain diagnostic features so that others may avoid the same pitfalls.

## CASE REPORT

*Resumé.* The patient, a female, forty-eight years of age, was admitted to Broadlawns Hospital May 6, 1933, complaining of slight weakness of the left hand for several years, generalized convulsive seizures for two years with residual paresis of the left arm and leg. A moderate hypertension was present, for which a bilateral partial adrenalectomy was performed, but the convulsions continued, although the blood pressure was somewhat decreased. She was referred to the State University of Iowa Hospital. Roentgenograms of the skull showed an exostosis over the right central region, and at craniotomy a 150 gram meningioma was easily removed. No further convulsions ensued.

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The patient was married and had three children. The family history was negative, and the past history was irrelevant except in points regarding her entrance complaint. She was brought to the hospital because of an attack, consisting of numbness, weakness and twitching of the left face, arm and leg, which occurred suddenly while she was eating. This was soon followed by unconsciousness which lasted forty-five minutes. There was no frothing at the mouth, biting of the tongue, or loss of sphincteric control.

Her examination showed a prematurely gray female with a left-sided paresis. There were no pathologic reflexes and the muscle coordination was reported as fairly good. The left border of the heart extended to the anterior axillary line, and the second aortic sound was accentuated. The blood pressure was 234 systolic and 120 diastolic. The pulse rate was 144. Urinalyses showed a specific gravity of 1.016 to 1.018, with a trace of albumin. The blood Kahn reaction was negative. On May 12 she was dismissed with no apparent weakness. Later she reported that her left leg remained weak for six months, and the left arm for twelve months.

After her dismissal from the hospital, she was seen in the out patient clinic for her hypertension, which was consistently high as shown by the following figures: May 15, 1933, systolic 220, diastolic 130; July 24, 1933, systolic 190, diastolic 115; April 9, 1934, systolic 205, diastolic 110. She received luminal for rest and reported on the last visit that she felt as well and strong as ever.

On October 27, 1934, she entered the hospital complaining of a series of "spasms." She had two at home and the one seen in the admitting room was marked by clonic spasms of the left face, arm and leg, during which there was a horizontal nystagmus of the eyes on deviation to the left. These attacks lasted about five minutes and were not relieved by the administration of amyl nitrite. Weakness of the left side of the body remained but no pathologic reflexes were present. The sensorium was clear and the patient was cooperative. The blood pressure was systolic 160 and diastolic 100. The return of function was slow in the left arm and leg. Spinal puncture revealed a pressure of fifteen cubic centimeters of water, no cells or excess of globulin, and the Wassermann test was negative. Repeated examinations of the urine were normal and the blood urea was 18 milligrams per 100 cubic centimeters. Thus it was felt that this woman had not suffered enough permanent arteriolar change but that adrenalectomy would be of value.

On October 29, 1934, under avertin anesthesia, a modified kidney incision was made in the right

loin and the kidney bed was exposed. It was noted that the kidney was extremely small, not over five centimeters in length. The adrenal gland was easily identified and three-fourths of it was removed. One iodoform drain was inserted and the wound was closed in the usual manner. Blood pressure at the start of the operation was 180/160 and at the close of the operation was 180/100. Following this the blood pressure fell to 140/90 and the patient stated that her head felt clearer than it had in many months. Recovery was uneventful and she was discharged from the hospital in three weeks. The blood pressure on dismissal was 140/95.

In December there was a recurrence of headache and the patient was admitted to Broadlawns Hospital on December 10, 1934, suffering from convulsions. Examination revealed a slight weakness of the left face, arm and leg, which soon returned to its previous strength. The optic fundi showed no changes and the laboratory examinations were essentially negative. The blood pressure was 240/110.

It was decided that a second stage operation was necessary and on December 18, 1934, a left subtotal adrenalectomy was performed under avertin anesthesia. Following the operation the blood pressure was 165/100. Recovery was uneventful and the patient was dismissed from the hospital on January 5, 1935. At that time her blood pressure was 145/90.

The patient was admitted to the neurologic service of the State University of Iowa Hospital on February 12, 1935, with the complaints of weakness of the left hand for four or five years, convulsions during the past eighteen months, and high blood pressure. On questioning she admitted that when playing the accordion in her performances on the stage she had noticed attacks, as far back as 1930, of a transient weakness of her left hand and leg, ascribed to the long and arduous work. Her father, who was a physician, had told her in 1931, that she looked as though she had high blood pressure because of her high color, but this had not been checked objectively. She noticed also that at times there were periods of loss of memory in that she could not keep the order of the musical numbers during a performance. She was a well-developed, well-nourished, adult female in no acute distress. She cooperated well and appeared to be of normal intelligence. She was well oriented and showed no mental aberrations. Distribution and texture of the hair was normal. The skin of the left hand was soft and atrophic, and that member was edematous. Her general physical examination was essentially negative. The heart was

not enlarged to percussion, and her blood pressure ranged between 158/80 and 150/80.

On neurologic examination the patient had no olfactory disturbance. Visual acuity was quite normal and the visual fields were normal to all tests. There was no evidence of choked discs and the retinæ were normal. The left pupil was slightly larger than the right, but both were central, regular and reacted well to light and to accommodation. Convergence was through a good range. All external ocular movements were full and there was no nystagmus. The left palpebral fissure was slightly wider than the right. Corneal reflexes were active and equal, and there was no sensory disturbance over the face. There was no weakness of the muscles of mastication. There was a very slight left lower facial weakness. Auditory acuity was grossly normal and air conduction was better than bone conduction. Weber's test was not lateralized. There were no abnormalities of the ninth, tenth, eleventh, and twelfth cranial nerves. All the tendon reflexes on the left side were slightly more active than those on the right, but the plantar reflexes on both sides were flexor in type. The left arm was definitely weak (being only about 30 per cent of normal) and the flexor group was stronger than the extensor. The left leg had about 70 per cent of the normal strength



Fig. 1. Lateral roentgenogram of the skull showing the area of increased density in the right central region.

and the extensors were stronger than the flexors. The resistance to passive movement in the upper extremity was slightly increased on the left side. In the lower extremities the resistance was decreased on the left. Rapidly alternating movements were poorly performed with the left hand, but well performed with both legs. There was no atrophy either grossly or on measurement of the arms and legs. Sensation was intact throughout. The skull presented no abnormalities on palpation, percussion or auscultation. The patient was able to walk, but was unsteady, tending to

fall to either side. In the Romberg position she was able to stand with the eyes open or closed. Roentgenograms of the skull showed an increased density in the right superior parietal regions (Fig. 1). This density was irregular in outline and consistency and measured 1.5 centimeters in diameter. A diagnosis of right central meningioma was made, and she was transferred to the neurosurgical service.

On February 19, under avertin anesthesia with local infiltration, a right central flap was turned down without difficulty. Only moderate bleeding was encountered. Upon reflection of the flap an irregular exostosis was seen in the superior parietal region, approximately over the precentral area (Fig. 2A). This was extended inward from the bone for approximately one centimeter and the dura underlying this bled moderately. The dura was under increased tension, but it was possible to palpate the margins of a firm mass lying under the upper portion of the bone flap and extending somewhat beyond the margins of the craniotomy. Accordingly, the bone was rongueured away in the superior parietal region until the entire mass could be outlined by the palpating finger. The dura

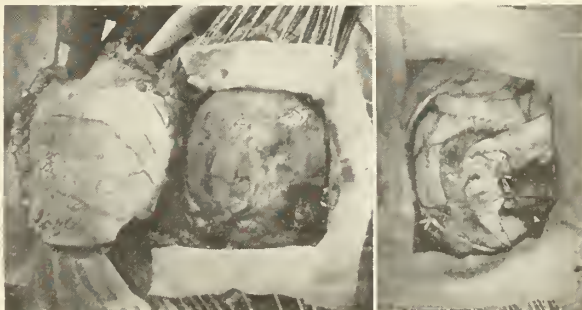


Fig. 2A.

Fig. 2B.

Fig. 2A. Photograph taken at operation to show the exostosis and its relation to the underlying tumor.

Fig. 2B. Photograph taken at operation to show the distinct line of cleavage between the brain tissue and the tumor.

was then reflected in the usual manner and a relatively vascular firm mass was then seen between it and the cerebral tissue (Fig. 2B). The neoplasm was firmly adherent to the cortex, so the central part of the tumor was removed piecemeal with the loop of the electric cautery. This allowed the deeper half of the tumor to be shelled out in one piece. The cortex underlying the tumor appeared slightly pale, but otherwise showed no abnormality. A slight oozing from several small cortical veins was controlled by silver clips and the application of small pieces of muscle. The portion of the cranium containing the exostosis was removed as was also the entire dural flap because it had been adherent to the tumor for an area of two to three centimeters. The dural defect



was repaired with a piece of fascia lata, the flap returned to its original position and the muscles and fascia were sutured with silk sutures. The skin margins were brought together with two layers of silk sutures.

The patient had a quiet and uneventful convalescence. The day following the operation she was able to move the left arm quite freely, and to open and close the fingers with greater ease than before the operation. Physiotherapy was applied to the left arm and motion in that member increased daily. At the time of her discharge, March 1, she had no complaints. The operative wound was well healed. Her fundi showed no abnormalities and she claimed that she could see better than before the operation, as she stated she could read easily without glasses. She had no facial weakness. The left grip was only 80 per cent of the right, but there was very little weakness to be detected in any other muscle groups of the arms or legs. Resistance to passive movement was about the same on both sides. The plantar reflexes were flexor in type. She was able to stand in the Romberg position. She could stand on the right foot alone, but was unable to stand alone on the left foot. The blood pressure at this time was 120/70.

Examination of the excised tumor showed it to be composed of several small pieces of fairly soft

a smooth firm surface upon which many whorls were evident. The entire tumor tissue weight was 150 grams. Histologic study of the sections of the tumor showed it to be a typical psammomatous meningioma. Study of sections of the exostosis showed no evidence of tumor invasion.

The patient has had no complaints and when seen in the out patient department of Broadlawn's Hospital on May 16, 1935, the blood pressure was 165/100. She stated that for the past two weeks she had been playing the piano in an orchestra with no difficulty.

#### DISCUSSION

Epileptic attacks beginning in adult life are not infrequent occurrences.<sup>1</sup> Their etiology is sometimes readily apparent, but usually obscure. In the present case the presence of a definite hypertension was considered sufficient to account for the seizures. However, there were several atypical features. A history of weakness in the left arm far outdating the onset of the convulsive attacks was present. The postepileptic paresis also suggested a focal brain lesion, because vascular insults, like lightning, do not usually strike in the same place twice. The presence of such atypical findings should cause one to be suspicious of an etiologic factor other than hypertension.

Not infrequently we find an intracranial neoplasm as the initiator of convulsive seizures. Approximately fifteen per cent of all convulsions occurring for the first time in adult life are due to brain tumors.<sup>2</sup> The other common causes are hypertension and arteriosclerosis, syphilis of the central nervous system and posttraumatic cortical scarring. The idiopathic variety becomes rare as

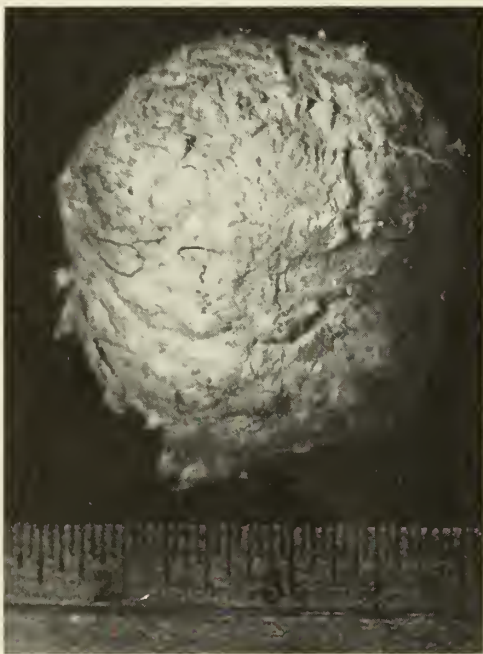


Fig. 3. Photograph of the large piece of tumor.

tissue and one large piece measuring eight by six by four centimeters. The large piece of tissue (Fig. 3) was firm in consistency, but had an irregular nodular surface, and on cut section showed



Fig. 4. Graph to show the blood pressure findings before and after partial adrenalectomy. The solid line represents the systolic and the dotted line the diastolic pressure.

the age increases, and constitutes less than twenty-five per cent of all cases which begin after an individual is forty years of age.

One frequently sees two of these factors present in the same individual and hence it is important to consider seriously all possible etiologic factors before making a provisional diagnosis and instigating therapy on that premise. For this reason any adult presenting himself or herself with the complaint of convulsive seizures should have a complete medical and neurologic work-up with a blood Wassermann test. If these are negative or if positive with any atypical features to the case the skull should be x-rayed and if this also shows no abnormalities, the ventricular system should be examined either by ventriculography or by encephalography before a diagnosis of idiopathic epilepsy is made.

#### SUMMARY

1. A case of cerebral meningioma manifesting itself by generalized convulsive seizures is reported in which a hypertension complicated the picture, and led to an erroneous provisional diagnosis.

2. The etiology of convulsive seizures occurring in adult life is discussed.

3. The effect of bilateral subtotal adrenalectomy in this case is shown graphically (Fig. 4).

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### CLINICAL NOTES FROM THE COLLEGE OF MEDICINE

#### MENINGOCOCCIC MENINGITIS

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Since the introduction of antimeningococcic serum in 1906 by Jochman for the treatment of meningococcic meningitis this serum has been considered as a specific form of therapy. Its value has been attributed to actual bactericidal qualities; to increased phagocytosis; to lysis of the organism; and finally to the antitoxin content of the antiserum. Ferry<sup>1</sup> in 1931 succeeded in demonstrating soluble exotoxins from the four Gordon types of meningococcus. In later experiments Ferry showed that animals receiving lethal doses of toxin intracisternally or intraspinaly could be protected by intraperitoneal injections of antitoxin but not by antiserum. Furthermore, animals immunized by sublethal doses of toxin were resistant to lethal doses of live culture.

The mortality rates for meningococcic meningitis before the production of antimeningococcic serum averaged from 60 to 80 per cent, whereas the average rate in the three year period following the widespread use of antiserum fell to 36 per cent<sup>2</sup>. This lowered mortality rate has not persisted as the fatality rate in the Detroit epidemic<sup>3</sup> with 1,628 cases rose to 50.5 per cent. During the non-epidemic period, 1926 to 1935, there were 2,901 cases of meningococcic meningitis in Chicago with an average death rate of 46.6 per cent.

In March, 1935, Hoyne<sup>4</sup> reported a series of 319 cases; 102 patients were treated with Ferry's antitoxin and 217 patients with the standard antisera. The fatality rate of the antiserum group was 48 per cent as compared with 20.5 per cent in the antitoxin group. Subsequent studies of Hoyne<sup>5</sup> have verified this lowered mortality rate with the use of Ferry's antitoxin; 27.3 per cent in a series of 201 cases and 20 per cent in a series of 82 patients treated by intravenous antitoxin or antiserum.

Even in rural communities there is a fairly constant number of endemic cases of meningococcic meningitis. A sampling of these is furnished by an analysis of the cases of specific meningitis seen by the Department of Pediatrics of the University Hospitals. During the period from January, 1927 to May, 1936, inclusive, there were 42 cases; 25 acute and 17 chronic. All of the patients have been under sixteen years of age, and 20 patients or 45.2 per cent have been under three years of age.

Sporadic cases of meningococcic meningitis have occurred in all seasons. However, the majority of the patients (25 out of 42) entered the hospital during the colder months of the year; between November and February, inclusive. Twelve other patients developed meningitis during the spring or fall and five patients contracted the disease in the summer months.

A suggestive history of contact was obtained in eight of the 42 patients. In one family the patient's mother died from meningococcic meningitis on the same date that the acute meningeal symptoms developed in our patient. The occurrence of family contact cases of meningitis is rare even in epidemics. Neal reported thirteen such cases in a series of 500 cases, Borovsky saw eleven multiple cases in 338, and Gordon found 65 contact cases in a group of 1581 cases, one family developing five clinical cases of meningitis.

The entrance complaints and symptoms of the patients were variable. They included fever, headache, vomiting, convulsions, pain in the back, pain in the legs, stiffness of the neck, "skin rash,"



and conjunctivitis. There was no common group of symptoms comprising a definite syndrome. Likewise the physical findings present on the initial examination were variable. The most frequent positive signs included stiff neck, Kernig and Brudzinski reflexes. Four patients were not examined during the active stage of meningitis.

	Stiff Neck	Positive Kernig	Positive Brudzinski
Present . . .	34	27	9
Absent . . .	4	2	1
Not stated . .		9	28

There was suggestive evidence of septicemia (petechiae or purpura) in eleven out of 42 patients, although a positive blood culture for meningococcus was found in only one patient.

In meningococcic meningitis the history and physical findings may lead to a presumptive diagnosis, whereas positive evidence is obtained only from laboratory tests. Lumbar puncture was performed at least once in all but five cases. The spinal fluid pressure remained normal in nine patients but was definitely elevated in twenty-one. Colorless spinal fluid was withdrawn from eight patients and an opalescent or cloudy spinal fluid was found in twenty-six. This turbidity indicated an increased white blood cell count in the spinal fluid; the counts ranging from less than 100 cells to over 200,000 cells per cubic millimeter. The increased cell count was caused by a predominance of polymorphonuclear cells in twenty-three patients and by lymphocytes in five patients. A gram negative diplococcus presenting the morphologic characteristics of the meningococcus was found on direct smear in seventeen patients. Confirmation by culture of the meningococcus from the spinal fluid was obtained in twenty-eight patients; positive nose and throat cultures in three patients; positive blood culture in one patient and by postmortem cultures in one patient.

Until July, 1935, it had been the policy of the Department of Pediatrics to give antimeningococcic serum intrathecally as soon as epidemic meningitis was suspected. This type of therapy was repeated on the average of every twenty-four to forty-eight hours until the acute clinical symptoms subsided and the spinal fluid approached normal. During the year 1934 and the first half of 1935 the meningococcus isolated from the patient was agglutinated against the various commercial serums. On the basis of clinical judgment this later procedure led to more effective treatment.

In one group of patients, twenty-two received antimeningococcic serum during the period of hospitalization. In this series eleven recovered completely; four recovered with residual defects, such as osteomyelitis of the lumbar vertebrae, one,

hemiplegia and encephalitis, one, and visual defects, two. Seven, or 31 per cent, of these patients died.

Ten of our patients did not receive active treatment at the University Hospitals. In four the treatment was considered adequate but recovery was associated with permanent disabilities such as deafness, two, and blindness, two. Six of the group of ten did not receive any specific treatment; only one patient completely recovered, two recovered but were permanently deaf and three patients died.

Since July, 1935, all patients suspected of having meningococcic meningitis have received Ferry's antitoxin. However, several of these patients had received antimeningococcic serum before admission to the University Hospitals. The antitoxin was given both intravenously and intrathecally; usually only one intravenous treatment was needed but the intrathecal antitoxin was repeated. Ten patients have received Ferry's antitoxin. In the five patients in whom the treatment was adequate complete recovery resulted. In the group with inadequate treatment, two patients died; one developed bilateral nerve deafness and two patients were found to have an internal hydrocephalus as proved by encephalograms.

The actual mortality figures for the antiserum and the antitoxin group of patients are practically identical. However, in the antitoxin group all patients who were adequately treated completely recovered; while the deaths occurred among those patients who did not receive sufficient antitoxin.

There is no general agreement as to what constitutes adequate treatment for meningococcic meningitis but there are a few fundamental principles. Whenever meningococcic meningitis is suspected treatment should be started immediately without waiting for bacteriologic proof. The antiserum or antitoxin should be given intravenously as well as intrathecally. A solution of from 60 to 100 cubic centimeters diluted to twice its volume with ten per cent dextrose or normal saline solution is the recommended intravenous dose. The important principle in the intrathecal administration of fluid is that a larger volume of cerebrospinal fluid be removed than is replaced, and that the replaced fluid must be injected slowly as is the case with the use of the gravity method. The frequency of intravenous and intrathecal therapy is a matter of clinical judgment. If subsequent studies are in agreement with Hoyne's work, treatment by a large intravenous dose given early in the course of the disease may become the accepted standard.

It has been mentioned that there is no typical syndrome of a meningococcus infection. This

statement is illustrated by the following case summaries.

Case 1. A two months' old infant was admitted to the University Hospitals with a left purulent conjunctivitis of three days' duration. The parental history for gonorrheal infections was negative. However, the smears taken from the left eye were positive for a gram negative diplococcus. The patient developed a dependent edema, cyanosis, swelling of the smaller joints and succumbed on the eighth day of illness. After the postmortem examination, including cultures, the following diagnoses were made: acute cerebrospinal meningitis; acute left conjunctivitis, acute pericarditis; acute arthritis, right and left knees and right first metatarsophalangeal joint; all of meningococcic origin. The clinical diagnosis had been an acute gonorrheal conjunctivitis on the basis of the morphology of the organism.

Gifford and Day<sup>6</sup> reported a case of an acute conjunctivitis caused by a gram negative diplococcus which by culture was a meningococcus. There were no other evidences of meningococcic infection in this patient.

Case 2. The patient, a boy fourteen years of age, was admitted to the University Hospitals with a history of fever, chills, vomiting, generalized muscular pain, stiffness of the neck of four days' duration and the appearance of a purplish and macular eruption on the trunk and extremities of two days' duration. The clinical diagnosis of meningitis was confirmed by positive cultures of the meningococcus from the spinal fluid, blood and throat. There was prompt and complete recovery following a dose of 105 cubic centimeters of antitoxin (35,000 units) given intrathecally. This case is cited because of the positive multiple cultures and the unusual family history. One sibling had a typical cerebrospinal meningitis three months before the onset of the patient's acute illness. One week after the onset of the patient's illness another sibling developed fever, stiff neck and a purplish-red macular skin eruption. The spinal fluid, blood and throat cultures were all negative. A third sibling developed fever, stiff neck, vaginitis and a purplish-red macular skin eruption one month later. The vaginal smears demonstrated a gram negative diplococcus but neither a gonococcus or meningococcus could be cultured. The spinal fluid, blood and throat cultures were likewise negative. The possibility of contact meningococcic infection with a macular eruption common to all the patients was suggested. A meningococcic vaginitis was suspected on the basis of the family history.

#### SUMMARY

1. The demonstration of a soluble exotoxin from the meningococcus by Ferry led to the production of an antitoxin for therapeutic use.

2. The clinical use of Ferry's antitoxin has been studied by Hoyne. The mortality rate with the use of antitoxin intravenously and intrathecally was 20.5 per cent whereas similar treatment with antimeningococcic serum produced a mortality rate of 48 per cent.

3. An analysis of forty-two patients with meningococcic meningitis examined and treated in the Department of Pediatrics of the University Hospitals during the period from January, 1927 to May, 1936, inclusive, is presented.

4. Summaries of two clinical cases are reported.

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### THE FINLEY HOSPITAL CLINICOPATHOLOGIC CONFERENCE

#### ACUTE SPHENOIDITIS WITH MENINGITIS

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Acute and chronic infections of the paranasal sinuses are well known clinically as possible sources of systemic infection and sepsis. Less well recognized is the fact that the sinuses are not infrequently the source of fatal intracranial complications. The case to be presented is an example of meningitis and septicemia following an acute sphenoidal sinusitis in an adult.

#### CASE REPORT

The patient, a white man fifty-five years of age, was admitted to The Finley Hospital, February 21, 1930, with a diagnosis of meningitis.

*Family history:* Irrelevant.

*Past history:* The patient had had erysipelas seven years previous to the present illness, but otherwise had been well. He had not been subject to "colds," but had indulged rather freely in alcohol.

*Present illness:* One week before admission the patient developed a "head cold." Because of it,



he did not work on the first two days, but the following two days he was able to do so. The next day he again remained home because of "fever and pain behind the left ear." He was first seen at this time when he had a temperature of 102 degrees and swelling, pain and tenderness over the left mastoid region. There was no discharge from either ear but the left drum head was slightly congested. He complained of a slight headache but was not nauseated. He walked with a slight stagger which he attributed to having been awakened from a sound sleep. The general examination was otherwise negative, and a provisional diagnosis of mastoiditis was made. He was instructed to apply an ice bag over the mastoid, and to report to the hospital for an x-ray examination on the following day. When seen the next morning the swelling, pain and tenderness over the mastoid had entirely disappeared and the temperature was normal. However, the patient was disoriented and had illusions of various kinds. The staggering gait had increased and marked tremor of the hands and fingers had developed. He complained of a severe pain over the right patella and had incontinence of urine. The pupils reacted normally and there was no evidence of facial paralysis. Because of the patient's history delirium tremens, precipitated by some infection, was thought to be a likely diagnosis. During the day the patient's condition became worse and when seen in the evening he was unconscious. He was perspiring freely and the temperature had risen to 103 degrees. The pulse rate was 120 and he was breathing rapidly. The eyes were set toward the right and there was slight nystagmus, but the pupils reacted to light. There was definite stiffness of the neck. The reflexes on the right side were hyperactive and the right arm and leg were slightly spastic. A diagnosis of meningitis was made and the patient was sent to the hospital.

*Course in hospital:* On admission the patient's temperature was 103.6 degrees; the pulse was 120 and the respirations were 28 per minute and stertorous in character. The stiffness of the neck had become more pronounced and there was ptosis of the right upper eyelid. The facial muscles were negative and the tongue movements were normal. Numerous moist râles were heard over each lung but there was no evidence of consolidation. The heart and abdomen were negative. The right arm was flexed and spastic. The right leg was extended and there was a distinct ankle clonus. Babinski's reflex was absent. There was incontinence of urine and feces. The skin showed no rash.

*Laboratory examination:* The white blood count was 27,000 with 88 per cent polymorphonuclear cells.

A spinal puncture was done and 15 cubic centimeters of opalescent fluid under slightly increased pressure was obtained. The cell count was 400 cubic centimeters per cubic millimeter with 75 per cent polymorphonuclear and 25 per cent mononuclear cells; sugar was negative; globulin, strongly positive; and smears showed large numbers of streptococci. Cultures of the blood and of the spinal fluid showed hemolytic streptococci.

*Subsequent course:* The patient failed rapidly and died twenty-two hours after admission.

*Final clinical diagnosis:* Streptococcus meningitis with septicemia.

*Autopsy abstract:* The general examination showed slight cirrhosis of the liver, moderate

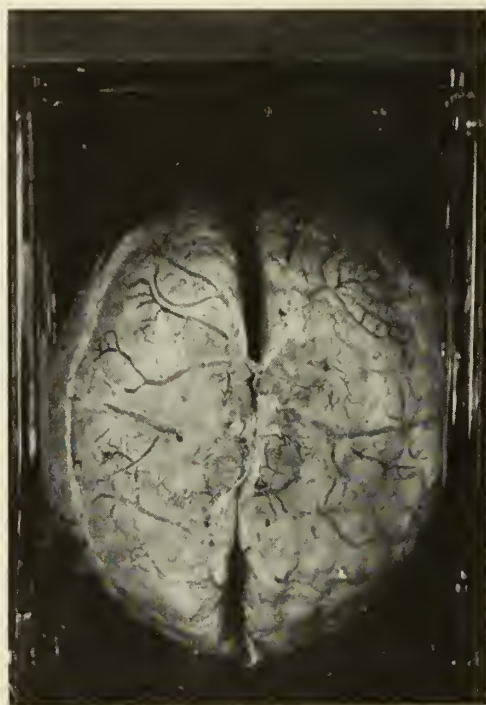


Fig. 1. Photograph of museum specimen. Note exudate over the surface of the brain.

atherosclerosis and irregular congestion and edema of the lungs. On removing the dura the brain was found covered with a thin purulent exudate (Fig. 1). The middle ears and mastoid cells were clean. The left sphenoid sinus was filled with a purulent exudate, smears of which showed enormous numbers of streptococci. The other paranasal sinuses were clean and lined by a pale pink, translucent mucosa.

*Anatomic diagnosis*—Primary: Purulent sphenoiditis;\* Acute seropurulent meningitis; septi-

\*Bacteriologic diagnosis: Smears of the sphenoidal pus showed streptococci. Cultures of the blood and spinal fluid showed hemolytic streptococci.

cemia; acute congestion of the viscera. Subsidiary: Cirrhosis of the liver; atherosclerosis.

As well as can be judged from the history given by the family, the patient had never been subject to "colds" or to any other nasal condition indicating chronic sinusitis. This was verified by the normal appearance of all the sinuses except for the acute condition in the left sphenoid found at autopsy. Therefore, it is reasonable to assume that the patient had a single overwhelming infection with the streptococcus hemolyticus which extended to the meninges and invaded the blood stream. More frequently patients developing intracranial complications give histories of some chronic disease of the paranasal sinuses.

#### DISCUSSION

The more important intracranial complications of nasal sinus infection are in the order of their frequency, brain abscess, meningitis, and thrombosis of the cavernous sinus. Less common lesions are thrombosis of the superior longitudinal sinus, extradural abscess, and suppuration of the pituitary body. Turner and Reynolds<sup>1</sup> report that in a series of 866 cases the incidence of spontaneous intracranial complication is approximately one per cent. Berger<sup>2</sup> tabulated 534 cases of intracranial complications following sinus disease and listed the incidence of the involvement of the several sinuses as follows:

Frontal sinus .....	61 per cent
Sphenoidal sinus .....	17 " "
Ethmoidal cells .....	14 " "
Maxillary sinus .....	3 " "
Undetermined .....	4 " "

Turner and Reynolds made intensive studies of the paths by which infection from the sinuses reaches the intracranial cavity. They concluded that there are three routes; first, by the venous blood stream; second, by direct extension through the cranial bones; and third, along the perineural sheaths of the olfactory nerves which are continuous with the arachnoid space. In their series of forty-five cases, the infection traveled by the blood stream in nineteen cases; it extended directly through the bone in twenty cases; there was a combination of direct extension and blood stream infection in eight cases; the infection was carried along the perineural sheaths in four cases; and the method of spread could not be determined in four cases. In our series of 400 autopsies there have been two cases of meningitis complicating sinus disease. In each case there was direct extension through the cranial bones and in the case reported there was also a septicemia. In another case the meningitis complicating a head injury was thought to have been the result of sinus disease.

These cases emphasize the importance of infection of the paranasal sinuses as possible sources of fatal intracranial complications.

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#### CHILD DEVELOPMENT AND PARENT EDUCATION CONFERENCE

The Tenth Iowa Conference on Child Development and Parent Education will be held in Iowa City, June 16, 17 and 18, 1936. The conference is sponsored by the Iowa State Council for Child Study and Parent Education with the cooperation of the Iowa Child Welfare Research Station and the Extension Divisions of the University of Iowa, Iowa State College, and Iowa State Teachers College.

The general theme for the conference this year will be Education for Family Life, and the following lectures on this subject will be delivered by speakers of nationwide reputation:

The Family Circle, Dr. Floyd H. Allport, School of Citizenship and Public Affairs, Syracuse University, Syracuse, New York.

Widening the Family Circle, and Family Life in its Social Implications, Dr. Hornell Hart, Professor of Social Ethics, Hartford Theological Seminary, Hartford, Connecticut.

Aid from the Child Guidance Clinic, Dr. Bruce B. Robinson, Director, Department of Child Guidance, Newark, New Jersey.

The Nursery School as a Family Aid, Dr. Grace Langdon, Emergency Nursery Schools, Works Progress Administration, Washington, D. C.

Guidance of Young People, Dr. Moses Jung, Professor of Religion, University of Iowa.

Home Economics for Men, Miss Nora Talbot, Dean, School of Home Economics, Oklahoma A. & M. College, Stillwater, Oklahoma.

Ungessed Gifts, and The Voice of the Individual Spirit, Mr. Hughes Mearns, Professor of Education, New York University, New York.

Cultivation of Leisure Activities, and Suggestions for the Development of Hobbies, Dr. William C. Reavis, Professor of Education, University of Chicago, Chicago.

Art in Everyday Life, Mr. Grant Wood, associate professor, Graphic and Plastic Arts, University of Iowa.

A symposium on Direct Aids to the Family will be conducted and consists of three parts; The Merrill-Palmer Advisory Service, Case Materials from the Child Study Association, and The Visiting Teacher as an Aid to the Family. A second symposium is entitled Social Aids to the Child. Motion pictures and demonstrations of children's activities will complete the three-day program.

No admission fee will be charged for any of the conference sessions, and additional information may be secured by addressing the Iowa Child Welfare Research Station, State University of Iowa, Iowa City, Iowa.



# STATE DEPARTMENT OF HEALTH

*Walter Diering*

## ROCKY MOUNTAIN SPOTTED FEVER

### 1. Convalescent Spotted Fever Serum

A limited amount of convalescent serum for the treatment of Rocky Mountain spotted fever will be available through the State Department of Health beginning June 15, 1936. The serum is human immune serum, obtained from persons who within the past several years have recovered from a known attack of Rocky Mountain spotted fever. Because of the limited amount, the serum will need to be reserved for the case or cases showing typical clinical and epidemiologic findings. Physicians reporting the disease may obtain further information relative to convalescent spotted fever serum by telephoning to the State Department of Health, telephone 4-9111, Extension 137 (after 5:00 P. M., telephone 7-1417).

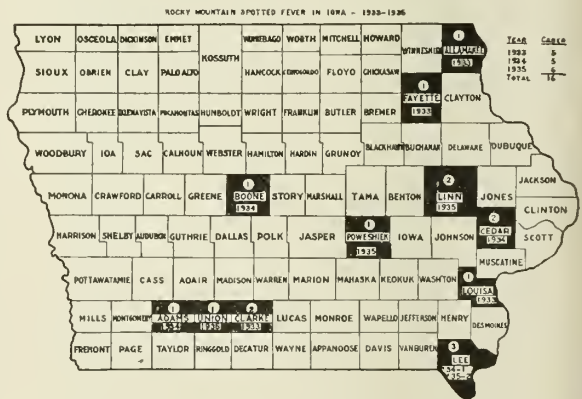
### 2. Distribution of Reported Cases in Iowa from 1933 to 1935.

Rocky Mountain spotted fever has been recognized as endemic in Iowa since 1933. The first case was reported to the department June 15, 1933, by C. N. Freligh, M.D., of Waucoma in Fayette County. Diagnosis was confirmed by a positive agglutination (Weil-Felix) reaction, carried out at the State Hygienic Laboratories and at the National Institute of Health in Washington, D. C. Diagnosis was further substantiated at a later date by the "protection test," completed on a specimen of the patient's blood serum at the Rocky Mountain spotted fever laboratory of the United States Public Health Service, in Hamilton, Montana. Sixteen cases of Rocky Mountain spotted fever were reported to the department for the three year period from 1933 to 1935. Five of these cases occurred in 1933, five in 1934 and six in 1935. No cases have been reported thus far in 1936. Distribution by counties of reported cases of this disease as indicated in the accompanying spot map, is as follows: Adams, one; Allamakee, one; Boone, one; Cedar, two; Clarke, two; Fayette, one; Lee, three; Linn, two; Louisa, one; Poweshiek, one,

and Union, one. The disease has not been reported as yet from any of the counties in north central or northwestern Iowa.

### 3. Diagnosis of Rocky Mountain Spotted Fever.

The disease may begin with prodromal symptoms of general discomfort and loss of appetite, lasting several days. Symptoms characterizing the acute attack are a chill, followed by high fever, headache, pain in back and legs, epistaxis, prostration and listlessness which may pass into stupor. The eruption, which usually appears on the third



or fourth day, consists of pink macules, irregular in size and outline, visible first about the wrists, ankles and forehead. The rash later becomes generalized and petechial in character. Signs referable to the nervous system may be prominent, such as exaggerated reflexes and definite ankle clonus. The history of a recent tick bite, removal of a tick or of exposure to ticks is of diagnostic as well as epidemiologic importance. The incubation period varies from three to seven days. The agglutination test (Weil-Felix reaction) on the patient's serum is seldom positive until the tenth to fourteenth day. Typhoid fever, measles and smallpox are diseases which need to be ruled out in the differential diagnosis in this section of the country. The macules (rose spots) of typhoid fever are

not distributed as mentioned above for spotted fever. Measles is not unduly prevalent at this time. The rash in measles appears on the forehead and face (not the wrists and ankles) before extending to the body. In smallpox, the macules soon become papular and "shotty" in character.

If cases of Rocky Mountain spotted fever should occur this season, physicians are requested to report promptly to the State Department of Health.

DIPHtheria MORTALITY AND MORBIDITY IN RELATION TO IMMUNIZATION

Do cases of diphtheria occur among children or adults who have previously received immunizing treatments with toxin-antitoxin, two-treatment toxoid or alum precipitated toxoid? Have any deaths from diphtheria occurred in Iowa in recent years among persons giving a previous history of immunization against this disease? The Iowa State Department of Health, in cooperation with physicians of the state, is conducting a study at this time to obtain definite information regarding the above questions. Information will be based on the 252 recorded deaths due to diphtheria in Iowa for the five-year period from 1931 to 1935, and on as many as possible of the 2,743 cases of diphtheria reported during the past five years. Special diphtheria mortality and morbidity questionnaire forms are being used in connection with this work. Physicians are asked to cooperate in supplying the desired data.

CONVALESCENT SCARLET FEVER SERUM YIELDS FAVORABLE RESULTS

Beginning in January, 1936, and throughout the period of major prevalence of scarlet fever in this

state, the State Department of Health has distributed at the request of physicians, convalescent scarlet fever serum for the control or prevention of scarlet fever. To date (May 29), 298 twenty cubic centimeter vials or about six liters of serum have been distributed.

By means of serum report forms, information has been obtained from attending physicians relative to results following the use of serum. Information is not at hand relative to the total amount of serum used. However, the serum report forms, completed and returned by physicians, show that among 54 persons who received prophylactic treatment following exposure to scarlet fever, 53, or 98 per cent escaped an attack of this disease. In the one instance, scarlet fever developed eight days after exposure. Favorable reports were received with reference to many of the 26 scarlet fever patients who were treated with convalescent scarlet fever serum. One patient, a young man, twenty years of age, received 120 cubic centimeters of serum intravenously. Within twenty-four hours, his temperature had dropped from 103 to 100 degrees, pulse from 120 to 90, angina from severe to slight, and the rash which was pronounced had disappeared entirely. In another instance, serum was given intravenously to a boy, seven years of age, for the treatment of "mastoiditis, lateral sinus thrombosis and septicemia." This child recovered. A note on the serum report form, returned by the physician attending this case, reads: "Beginning of recovery undoubtedly due to use of serum."

It is hoped that physicians who have used convalescent scarlet fever serum in the treatment of scarlet fever or related streptococcic infections will prepare case reports in greater detail for publication in the JOURNAL.

PREVALENCE OF DISEASE				Most Cases Reported From
	Apr. '36	Mar. '36	Apr. '35	
Diphtheria .....	18	46	45	Des Moines, Wapello
Scarlet Fever .....	1,000	978	370	(For State)
Typhoid Fever .....	1	10	3	Floyd
Smallpox .....	169	78	22	Woodbury
Measles .....	18	12	3,393	Harrison
Whooping Cough .....	58	58	78	Sac, Lee, Linn
Cerebrospinal Meningitis .....	10	13	16	Dallas, Polk
Chickenpox .....	233	227	254	Boone
Mumps .....	637	1,062	1,381	Black Hawk, Woodbury
Poliomyelitis .....	0	1	0	
Tuberculosis .....	42	28	33	(For State)
Undulant Fever .....	8	4	6	(For State)
Syphilis .....	111	76	116	(For State)
Gonorrhea .....	119	106	148	(For State)



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FOR THE PUBLIC HEALTH

Unlike most businesses medicine endeavors to eliminate its commodity in trade, that is, sickness, and strangely encounters countless objections from the public which it strives to protect. At this time the medical fraternity is actively sponsoring three measures which, if adopted, will probably be reckoned as the most significant of this decade. The first, having to do with the licensure of specialists in the practice of medicine, would seem, on superficial consideration, of concern only to the medical profession itself. The second measure, more obviously for public protection, has to do with the enactment of laws regulating and controlling the sale and advertisement of foods, drugs and cosmetics. The third problem of outstanding and conceded importance in the preservation of the public health is that involved in the consideration of a socialized plan of medical practice.

While these problems involve principles of most vital and intimate interest to every physician, their far-reaching effects should command the painstaking interest of every individual. The protection of the public health motivates every proposed action and in every instance the promotion of a more effective and acceptable medical practice is predicated in the proposal. Why then, one may ask, does the public not fight with the physician in this battle for better health? The answer appears fairly simple. The public is uninformed, or if informed is often misled by propagandists who have "an axe to grind." We have previously stated in these columns and will reiterate at this time, that if the public is to be enlightened and stimulated to an active interest in these matters, the teaching must come from physicians well informed in the principles and problems concerned.

The Licensing of Specialists

Epochal in this century and particularly in the last fifty years is the growth of specialism in medi-

cal practice. Basically this movement is economic in that physicians saw in the especial skill achieved by limiting their interest, a more satisfactory and successful practice and manifestly a greater return for this service. Further, the perfection of facilities for communication and the ease of transportation made feasible specialization by grossly enlarging the physician's potential clientele. Finally in specialism many physicians saw a more comfortable urban life free from many of the vicissitudes which harass the life of the general practitioner. While specialism has not developed, then, solely as a public service, the public has nevertheless accepted this practice and in most instances benefited materially by the plan. Unfortunately, for both the public and the profession, the specialist has not always qualified for the service undertaken and the public trust was betrayed. Declaration as a specialist is not sufficient guarantee of a special knowledge to render a special service. However, in our present system declaration has been the sufficient criterion for many self-styled specialists. While a medical curriculum prepares the physician in all branches of practice, it does not and never has presumed to give the more extended knowledge which should be the requisite for special practice. Only special study and experience can meet this demand. These are among the most pertinent, if not the most pertinent, reasons for the enthusiastic endorsement of the present movement to permit specialism only by examination and certification. If the public in general could realize the significance of this movement in their protection, physicians would not only be assisted in the perfection of a plan but an insistent public would demand the action. Specialism practiced only by those of proved fitness will command public respect and effectively serve the public health.

A Food, Drug and Cosmetic Act

Originally sponsored by Dr. Wiley and more recently by Dr. Copeland, measures have been advocated in Congress designed to protect the public by demanding honesty in the sale of foods, drugs and, most recently, cosmetics. It seems almost unbelievable that the general public should remain apathetic to so vitally important a measure. Frauds in the sale of these commodities cannot be reckoned in dollars and cents, since all too frequently the price paid is human life. Poisoned foods may reveal themselves promptly in sickness and death, but a misrepresentation of foods or food values may take an insidious toll of strength and energy which ultimately culminates in disease and death. A drug may be ill-advised and fatal when spuriously labeled or misrepresented. More sad and more deadly are those drugs purveyed by

unscrupulous persons who capitalize on the credulity of the public, to create unfounded hope of cure in those serious maladies where genuine relief is only possible when a scientific treatment is administered in the early stages of the disease. If the general public could realize, as the physician does, the hazards of unprotected traffic in these essential commodities, here also, we would find an alarmed and insistent public demanding protection which can only be assured by a strong and comprehensive measure such as the Copeland Bill, as originally introduced into Congress at its present session. Unfortunately, this bill has undergone considerable modification, and these changes have weakened rather than strengthened the measure. It is hoped that sufficient pressure will be brought upon Congress before the final passage of a food, drug and cosmetic bill to restore the measure to its original comprehensiveness and strength.

#### **The Socialization of Medical Practice**

In commenting on the efforts to promote the public health through the licensing of physicians and in the enforcement of laws to demand honesty in the sale of foods, drugs and cosmetics, we have stressed the sponsorship of each movement by the medical profession in spite of a widespread apathetic attitude of the laity. For some little understood reason in considering the form which medical practice of the future should take, apathy has given away in many quarters to an open antagonism, and certain lay agencies would dictate a plan without a voice by the physician. They would see the independent practitioner replaced by a salaried employee of the government whose duties are assigned by lay administrators and whose patients are permitted no voice in the selection of their medical counsellor. Taxes would care for professional services much the same as it does for garbage disposal or the cleaning of the streets. Positions of preference in practice would logically be awarded to the politically elect, and seniority rights would replace personal endeavor and accomplishment. The public, whose interest the plan is designed to protect, should consider the workings of similar plans in other countries and profit by their costly experiences. Over considerable time such schemes have been found ineffective and unreliable by our cousins across the sea. Efficient medical service can only be rendered by physicians unhampered by regimentation to patients who are free to select their own personal physician and a healthy doctor-patient relationship maintained and encouraged.

While the three proposed measures bear many points in common they are not interdependent. Success is practically assured the plan dealing

with the licensing of specialists. The bill regulating the sale of foods, drugs and cosmetics, has been passed by the House and will without doubt be called for vote before the Senate at this session of Congress. As yet a socialized plan of medical practice remains an ominous threat, but those in a position to know advise that unless active counter-measures are vigorously pressed by the medical profession, a plan for the socialization of medicine will surely become a reality. We as physicians have accepted the rôle as custodians of the public health, and it therefore behooves us not to fail this trust in these vitally important matters.

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#### **OUTSIDE THE LECTURE HALL AT THE A. M. A. CONVENTION**

Several decades ago Kansas City made front page news when a municipal auditorium was completed. It was an imposing structure, and the Kansas Citians were proud of it. They showed it to their visitors with pardonable boasting. Directly across the street from this old auditorium today stands the newly erected Municipal Auditorium of Kansas City. This magnificent structure, one of the largest of its kind, makes the old building look insignificant and shedlike by comparison. It was in this grand new Municipal Auditorium that the American Medical Association convention was held this year, and even this enormous structure was filled to overflowing by the convention. One cannot help but be impressed by the striking similarity in development which the past two or three decades have produced; on the one hand the small unassuming auditorium of thirty years ago which has been replaced by the majestic edifice of today, and on the other hand the modest unpretentious gathering of physicians which has gradually acquired nationwide recognition, until now the annual meeting of the American Medical Association is conceded to be the most outstanding convention, from the standpoint of importance and attendance, in the medical world today.

One's first impression concerning the convention was of its size. The activities of the convention not only filled the great Municipal Auditorium, but also taxed the facilities of every available hotel, and Kansas City is well supplied with hotels. It filled the apartment houses and even overflowed into the residential districts. The whole city was humming with the activities of nearly seven thousand members of the association whose proceedings included lectures, addresses, and scientific exhibits for serious study, and dinner parties, smokers, and a variety of social conferences for relaxation.



With all this bustling activity a striking characteristic of the convention was the studious attitude and the gentlemanly conduct of the delegates, which existed everywhere. Whether at the cocktail bar or at the installation of officers; whether on the golf links or in the House of Delegates, good manners and good feeling prevailed. Kansas City must realize that to the physicians a convention means an opportunity for study and advancement as well as for refined levity and relaxation, and Kansas City will respect the profession more because of this attitude.

That part of the convention which was open to the public, consisted only of one evening when the medical profession was given the keys to the city, when governors and candidates for the U. S. Senate spoke, when dignitaries of our own profession "strutted their stuff"; in other words, it was an evening given over to stuffed shirt performances, where workers were conspicuous by their absence. In the House of Delegates where the business of the organization is transacted and its policies are molded, politics had its fling. Here votes were traded, those with ambitions jockeyed for positions of importance, and resolutions were passed amid much moving and seconding. Business was done, as the records show, and one views the proceedings of the House of Delegates not only with justifiable pride of accomplishment, but also with pride in the high ideals of the profession and the commendable humanitarian principles which are sponsored.

Frivolity may be countenanced, politics may be condoned, and fraternity may be commended, but after all the lasting and worthwhile labors of the convention are those which add to the value of the physician's service to mankind. This is the measure of real accomplishment of every convention. The question is only "was the advance this year greater or less than that of the year before?" and in this it is hard to judge. This power of evaluation comes to us only in retrospect. Practically every imaginable phase of medicine and surgery presented their achievement either in the form of lectures, talks, or scientific exhibits. This much, however, must be said; the enormous number of enthusiastic activities and the marvelous scientific exhibits lead one to believe that this year's scientific achievement was certainly not less than during any other previous year.

In addition to the sections of the American Medical Association proper, numerous special societies of physicians met at this time in Kansas City. Here ten to fifteen minute papers were presented from morning to night, and constructive

discussion filled the meeting rooms in every hotel throughout the convention. The information obtained and the inspiration given in these more formal meetings cannot possibly be over-estimated.

The scientific exhibits have been the pride of American doctors for many years. The writer has seen a number of them, and each year has felt that they were most worthwhile and could not be improved. At least twelve full hours were spent in viewing this year's exhibits, and all one can say is that they were more marvelous than ever. No one who attends a convention can afford to miss seeing the exhibits, and no person once having seen them will ever attend another convention without viewing them again. Special mention should be made of the commercial exhibits, which each year are taking on more and more of the character of the scientific exhibits, making them more attractive to the convention visitor.

In a word, the 1936 national convention was an eminent success and a meeting to reflect upon with justifiable pride.

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#### IOWA'S IMMUNIZATION PROGRAM

One of the most important features of Part 1, Title V, of the Social Security Act, is that which provides for immunization of children against disease. In the Iowa plan, which has been approved by federal authorities at Washington, it has been necessary to confine the immunization program to diphtheria, and the State Department of Health, under whose direction this part of the Act is being administered, has wisely still further limited the expenditure of such funds as will be available for this purpose, to children between the ages of nine months and two years. It is necessary also to limit the program to the rural areas of those counties of Iowa which have shown the highest mortality rates from the disease. Twenty-nine counties account for 77 per cent of all the deaths occurring in the state. It is in these counties that the attempt will be made to increase the number of protected children.

The program contemplated will immunize as many children of the above mentioned age group as possible each year for a period of five years, when it is hoped sufficient impetus will have been obtained to continue the project without the need of outside assistance. The work will be done by the physicians of the local county medical societies in their offices, and remuneration will be made from federal funds.

On May 25, the Committee on Child Health and Protection of the Iowa State Medical Society met in Des Moines with the director of the Division of Child Health and Health Education of

the State Department of Health. Among other things, the above plan was presented to the Committee for discussion. The Committee unanimously approved it because of several features embodied in it which to them seemed important. In the first place it is distinctly educational, and not simply a method of obtaining free immunization for all the children of a community. People should be taught that infancy and not school age, is the proper age to have a child immunized against diphtheria. Mortality statistics show that over 50 per cent of all deaths from diphtheria occur in the preschool age. Hence the limiting of this plan to children between the ages of nine months and two years should be of value in emphasizing this point. It is conceivable also that it may have an educational value for some physicians, in teaching them that it is their duty to advise and urge parents about the proper age and the importance of protection against diphtheria. Physicians, as guardians of the health of a community, should assume the responsibility for preventing such diseases as diphtheria and smallpox from occurring in their communities. If this ideal prevailed there would be no occasion for governmental interference in what ought to be a private matter between patient and physician.

The actual administering of the preventive agent by local private practicing physicians in their own offices, and the limiting of the plan to a five-year period for any one community, are additional features approved by the Committee as further evidences of the educational nature of the program. The Committee feels that the members of the Iowa State Medical Society should distinguish clearly between the significance of a distinctly educational program of the sort under discussion, and one whose aim is simply to produce mass results.

#### REMARKS AT GOLDEN ANNIVERSARY MEETING\*

**Celebrating Fifty Years of Practice for William  
Jepson, M.D., and Frank Murphy, M.D.**

Mr. Chairman:

We who are here by your gracious courtesy feel it is one of life's privileges to join with the Woodbury County Medical Society in doing homage to your two distinguished members, a pair of Nature's noblemen and worthy disciples of our guild, who blazed the trail of modern medicine in this community and far beyond, during a half century of enduring service. It is for each of us a happy hour to add by our presence the tribute of affection and felicitation to Doctor Jepson and Doctor Murphy on this memorable occasion.

Distinctive as it is in commemorating a record of fifty years in the practice of our profession, it affords a further unique example of a rare and unfaltering friendship enduring throughout all these years. The noble attributes of each, the Celt and the Dane, the internist and the surgeon, the talents of the one serving to complement the other, adding stature to both as man and as physician.

It is possible that Dr. Jepson touched the lives of some of us a bit more closely, and I might even presume to claim a closer kinship, for my grandfather, born in 1798 in Horsens Jutland, bore the name of Peter Jepson Bjerring and his son, my paternal ancestor, was named Jeppe Peter-son Bjerring. If traditional custom had been maintained as Jeppe's son, Jepson should have been a part of my name.

It is my pleasure to bring greetings to this happy occasion from a classmate of Doctor Jepson at Jefferson Medical College, Major General Merritte W. Ireland, former Surgeon General of the U. S. Army, as expressed in a letter received yesterday, as follows:

Washington, D. C.  
May 22, 1936.

Dear Doctor Bjerring:

I understand a dinner will be given on May 26 to Dr. William Jepson, to celebrate his fifty years in medicine.

If Jepson has done nothing else in his professional career but save your life thirty years ago by his skill and courage, his name should be written in the history of medicine. But he has done more. He has spent a long life in honoring our profession.

I first met Doctor Jepson during the winter of 1890-91, when we were doing post graduate work in Philadelphia. He was then known as a competent physician and general surgeon in his home town, and surrounding country.

He has spent his life caring for his patients in a most skillful and sympathetic way. The human element entered into his practice. That is the reason his patients have loved him.

All glory to this friend and great physician. I am glad to join his friends in doing honor to him.

My best wishes and affection to him.

Very sincerely,

M. W. Ireland.

This calls forth an interesting episode in the life story of our friend. After graduating in medicine at the State University of Iowa in 1886, he spent four years in developing a successful practice in this community, but the constant urge for further knowledge led this enthusiastic student to enroll in the senior medical class of both the University of Pennsylvania and Jefferson Medical Colleges, Philadelphia, in the fall term of 1890. Some nine months later, in May, 1891,

\* Presented by Walter L. Bjerring, M.D., of Des Moines, at meeting held May 26, 1936, in Sioux City.



he thus attended two commencement exercises on the same day, obtaining diplomas conferring the degree of Doctor of Medicine from two of America's famous medical institutions. As if this were not enough for one day's accomplishment, he must necessarily stand up for his Jefferson College classmate Ireland, who was absent in New York taking the Army medical examination, requiring Jepson to answer to the name of the future Chief Surgeon of the A. E. F. in the greatest war in history, and who later served for nearly thirteen years as Surgeon General of the U. S. Army.

Six years later, in 1897, the urge again prompted a trek across the sea to the University of Edinburgh, where after special courses of study, he was able to sit for the Triple Qualification Board of Scotland, placing his name on the British practice registry, and adding two more degrees to his name, L.R.C.P and M.R.C.S. of Edinburgh. Somewhere about this time he gathered in an additional degree of Master of Science from the University of South Dakota.

His high place as a teacher and practitioner of surgery was now well established, and it seemed only natural that the Board of Regents of the University of Iowa should look to this brilliant young surgeon to become the successor to the beloved Middleton, as professor of surgery in the College of Medicine. We awaited with interest his coming into the University Faculty of Medicine in the fall of 1902. While we had met at the state medical meetings, and been distinctly impressed with the high order of his publications, we were little prepared for that marvelous enthusiasm for work and concentration of energy that fairly took us off our feet. It was necessary literally to rewind our clocks. He soon became for each of us, the teacher and the master, for he was at home alike in anatomy, physiology, pathology and medical diagnosis, as well as in his chosen field.

He was capable of an incredible volume of work, yet ever maintained that conservative surgical judgment that formed the best measure of his success as an operating surgeon. Prominent visiting surgeons were always extended the courtesy of guest in the operating room, yet even the tyro on the benches was prone to make comparisons and note a difference.

He infused a new spirit of clinical investigation into the life of the University Medical School, and easily gained the affectionate regard of colleagues and students to the highest degree. We can speak with propriety of a Jepson epoch, for he left the impress of his inspiring personality

and scholarship on every one with whom he came in contact.

Then and later many deserving honors came to him, the presidency of the Iowa State Medical Society in 1906, when he selected Doctor Murphy as chairman of the Section on Medicine, leadership in the Western Surgical Association, charter member of the American College of Surgeons, an honorable military record in the World's War, secretary and chairman of the Iowa State Board of Medical Examiners, chairman of the Iowa Cancer Committee, and withal a leadership in civic and human affairs that placed him among the distinguished and honored sons of Iowa.

To you, Doctor Jepson and Doctor Murphy, we bow in honor of your achievements in advancing the ideals of the science and art of medicine. In your lives you have taught a religion of charity, of work not of words, and extended far afield that spirit of enthusiasm aptly termed by Pasteur—"un Dieu interieure," or "the God within," which was ever the motive power of all human effort. You have been privileged to travel life's pathway with many of the best men of your generation in this Golden Age of medical progress of which you have been a part in the fullest measure. While we leave you thus on those serene heights where in the words of Whittier, "the outlook is good and there is no more hill climbing," we know there are yet many honors and opportunities for human service ahead, but we beg to voice the prayer that life for both of you will continue to take on a new tranquility and each year bring a fresh fruition, a better understanding, a broader sympathy, and a deeper appreciation of truth and beauty.

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#### ATTENTION! MEMBERSHIP ROSTER

The attention of delinquent members and county society secretaries is called to the fact that the July issue of the JOURNAL will carry a complete roster of the membership of the Iowa State Medical Society, as of June 15, 1936. Delinquent members are urged to pay their current dues to their county secretaries at once so that they will reach the central office on or before this date, and thus enable their names to be included in this official roster. County medical society secretaries are asked to bring this matter to the attention of those members whose dues are now in arrears. This roster is to be published in the July JOURNAL each year in accordance with the action of the House of Delegates at the 1936 annual session. The July JOURNAL already carries the Transactions of the House of Delegates and it was thought that the inclusion of a roster of the membership would make this issue of the JOURNAL a most valuable and complete reference number of the activities of the State Society.

# WOMAN'S AUXILIARY NEWS

*Edited by the Press and Publicity Committee*

MRS. DEAN W. HARMAN, *Chairman*, Glenwood, Iowa

## STATE MEETING

The Woman's Auxiliary to the Iowa State Medical Society enjoyed a very profitable and well attended three-day meeting April 29 to May 1, inclusive, at the Hotel Fort Des Moines in Des Moines, with a total attendance of well over one hundred members and many guests. Highlights of the meeting included a debate on socialized medicine by debating teams from Iowa State College and Drake University, a talk on "Cancer Control" by Dr. F. L. Rector of Evanston, Illinois, representing the American Society for the Control of Cancer, and a talk on "The Social Security Act" by Dr. Thomas A. Burcham, president of the State Society. A tour of the Smouse School for Handicapped Children was educational as well as very enlightening to many who had no conception of the opportunities offered to the handicapped children of Des Moines.

Much credit is due the Polk County Auxiliary in arranging the delicious luncheons, dinners and entertainment for the visiting members. Twenty-one counties were reported organized and several more are in the process of organization. Many very interesting reports of the year's work were given, and practically all had followed the state program as outlined in the beginning of the year by our very capable past president, Mrs. M. C. Hennessy.

At the close of the sessions Mrs. Clyde A. Boice of Washington, newly elected president, spoke words of encouragement and the hopes for an increased membership for the coming year.

## Polk County

Members of the Woman's Auxiliary to the Polk County Medical Society held their May meeting at the Hoyt Sherman Place for a one o'clock luncheon, with Mrs. T. B. Throckmorton presiding. Reports of the state meeting were given by Mesdames A. E. Merkel and E. R. Posner.

Misses Frieda Jones, Betty Beacon and Margaret Johnson, Drake University Dormitory Girls' string trio furnished music, and a play production class from Drake presented a Russian farce.

Dr. J. H. Kinnaman of the Iowa State Board of Health discussed the Social Security Act as it relates to maternal health and child welfare.

## Pottawattamie County

The Woman's Auxiliary to the Pottawattamie County Medical Society met April 20 for a dinner followed by the monthly meeting. Mrs. S. D. Maiden, chairman of the committee on Public Relations, reported that arrangements had been made for "Health Week" in the schools, a health talk to be given in every school every day during the week by the local doctors. The program consisted of a debate by the high school debating teams on "Socialized Medicine." A general discussion of the subject followed.

## HYGEIA

Log I. Clipper *Hygeia*. Longitude West.  
Visibility Good.

Yo-ho! Heave, Ho! The good Clipper *Hygeia*, in ballast with Health and Happiness, sends greetings from the Golden West!

Take-Off: September, 1935. Over terra firma, studded with high pinnacles of obstructive "cults"; plowing her wings through the mists of "anti-vivisectionism"; yet onward soared the Clipper, zooming and gliding over the eleven western states. Enthusiastic appreciation was accorded this aerial messenger of health in Washington, Utah, Oregon, Colorado, Nebraska and California, evidenced by their tonnage of goodly SUBSCRIPTIONS. Arizona, Idaho and Nevada offered only "light Subscription fuel." Onward over the Dakotas and Wyoming, the three dormant beauties, searching for "radio beam subscriptions." Signals to cheer the Clipper crew toward its stratosphere of hopes in a crusade for bigger and better minds, 100 per cent P. T. A. Landings.

April 1, 1936: Again out into the open from the hanger "de Los Angeles" flew Clipper and Skipper with a cargo of health additions for Alaska, Cuba, Hawaii, the land of Aloha, and "back yonder" to the land of the kangaroo, the Antipodes.

"Hopping" back to the U. S. A., this Marco Polo of Health is "standing by," ready and waiting for further commands from Headquarters, the A. M. A., to inoculate the land and sea with messages of Health, Happiness and Hygeia.

Mrs. Mark A. Glaser, Skipper of the Clipper



## SOCIETY PROCEEDINGS

### Cerro Gordo County

The regular monthly meeting of the Cerro Gordo County Medical Society was held at the Hotel Hanford in Mason City, Tuesday, May 5. Bert E. Hempstead, M.D., of The Mayo Clinic, Rochester, was the visiting speaker, and took for his subject Suppuration of the Petrous Portion of the Temporal Bone. C. E. Dakin, M.D., of Mason City, presented a paper on Shock. A most interesting informal discussion followed the program.

H. W. Morgan, M.D., Secretary

### Clinton County

The Clinton County Medical Society met in regular session Thursday, May 7, at the Lafayette Hotel in Clinton. After the six o'clock dinner, J. Stuart McQuiston, M.D., of Cedar Rapids, spoke on Common Neurologic Conditions; and Morgan J. Foster, M.D., also of Cedar Rapids, read a paper on Intracranial Birth Injuries. Following the talks, motion pictures were shown of Novocain Anesthesia in Obstetrics.

G. M. Ellison, Secretary

### Jasper County

S. J. Ritchey, M.D., of Colfax, furnished the scientific program for the Jasper County Medical Society when that organization met Tuesday, May 5, at the Skiff Memorial Hospital in Newton. Dr. Ritchey spoke on Endometriosis.

### Linn County

At the meeting of the Linn County Medical Society held in Cedar Rapids, Friday, May 8, Dr. Jennings Crawford was installed as president. Other officers elected are: Dr. A. R. Zuercher, president-elect; Dr. E. F. Ebersole, of Mt. Vernon, vice president; Dr. Robert Y. Netolicky, secretary; Dr. F. W. Mulsow, treasurer; and Dr. T. F. Hersch, editor of the bulletin. At the business meeting it was decided to continue the same plan for the care of the indigent sick. Any change in plans must be made by the Board of Trustees. Dr. H. M. Ivins is the medical director of the medical relief work.

T. F. Hersch, M.D., Secretary

### Marshall County

The annual summer clinic sponsored by the Marshall County Medical Society was held Wednesday afternoon, May 27, at the Hotel Tallcorn in Marshalltown. The following speakers took part on the program: Ralph Ghormley, M.D., of Rochester, Some Derangements of the Knee Joint; H. C. Habein, M.D., also of Rochester, Some Phases of Renal Function; and A. E. Kanter, M.D., of Rush Medical College, Chicago, Ectopic Pregnancy; Diagnosis and Management.

### Pottawattamie County

A joint meeting of the Pottawattamie County Medical Society and the Southwestern Iowa Postgraduate Medical Association was held in Council Bluffs, Monday, May 25, with Walter D. Abbott, M.D., of Des Moines, as guest speaker. Dr. Abbott addressed the group on Presacral Neurectomy in the Treatment of Certain Pelvic Bladder and Bowel Disorders. Case reports were presented by Drs. F. Earl Bellinger, Daniel Hankey, and L. G. Howard, all of Council Bluffs. With the meeting the society adjourned for its summer recess, and the next meeting will be held Monday, September 21.

Fred H. Beaumont, M.D., Secretary

### Scott County

Harold C. Voris, M.D., associate professor of surgery at Loyola University School of Medicine, Chicago, was the speaker of the evening when the Scott County Medical Society met in Davenport, Tuesday, May 5. Dr. Voris spoke on Head Injuries, and a round table discussion followed the formal presentation.

### Woodbury County

The Woodbury County Medical Society met Tuesday, May 26, at the West Hotel in Sioux City, to celebrate the completion of fifty years' practice by Dr. William Jepson and Dr. Frank Murphy, both of Sioux City. Kellogg Speed, M.D., clinical professor of surgery, Rush Medical College, Chicago, presented the scientific address of the evening, discussing Spinal Injuries. Tribute was paid to Drs. Jepson and Murphy by the following physicians: Dr. W. R. Whiteis, Iowa City; Dr. P. H. Salter, Norfolk, Nebraska, past president of the Nebraska State Medical Society; Dr. J. C. Olmacher, Vermillion, South Dakota, dean of South Dakota State Medical School; Dr. E. M. Myers, Boone, president-elect of the Iowa State Medical Society; Dr. Howard L. Beye, Iowa City, professor of surgery, University of Iowa, College of Medicine; Dr. E. M. MacEwen, dean, University of Iowa, College of Medicine; Dr. Prince E. Sawyer, Sioux City, president, Iowa State Medical Society; and Dr. Walter L. Bierring, Des Moines, past president of the American Medical Association. The full text of Dr. Bierring's remarks will be found elsewhere in this issue of the JOURNAL.

### Southwestern Iowa Postgraduate Medical Society

Members of the Southwestern Iowa Postgraduate Medical Society met at the Hotel Delmonico in Shenandoah, Monday, April 20, to hear two guest speakers from St. Louis, faculty members of the Washington University School of Medicine, present

papers of interest to the medical profession. Dr. J. F. Aldrich, president of the Page County Medical Society, introduced Roland M. Klemme, M.D., who spoke on Early Diagnosis of Intracranial Lesions, and Louis H. Jorstad, M.D., who addressed the group on Carcinoma of the Lip and Tongue.

#### State Society of Iowa Medical Women

Newly elected officers of the State Society of Iowa Medical Women, named at the recent annual meeting held in Des Moines, are: Dr. Alice Humphrey Hatch of Des Moines, president; Dr. Martha M. Link of Dubuque, vice president; Dr. Rose Butterfield of Indianola, secretary; and Dr. Jeannette Dean-Throckmorton of Des Moines, treasurer.

#### Twin Lakes District Medical Society

The fourteenth annual assembly of the Twin Lakes District Medical Society will be held at Burns' Alhambra Pavilion, Twin Lakes, Rockwell City, Thursday, June 11. Olin West, M.D., secretary of the American Medical Association, heads the list of distinguished speakers. Diagnostic clinics in general medicine, eye diseases, general surgery, gynecology, and pediatrics will be presented by the following guests: Drs. Robert W. Keeton, professor and head of the department of medicine, University of Illinois, College of Medicine, Chicago; Cecil S. O'Brien, professor and head of the department of ophthalmology, State University of Iowa, College of Medicine, Iowa City; Claud F. Dixon of the division of surgery, Mayo Foundation, Rochester, Minnesota; Ralph A. Reis, associate in obstetrics and gynecology, Northwestern University Medical School, Chicago; and Willis Stanley Gibson, associate professor of pediatrics, Northwestern University Medical School, Chicago.

#### PERSONAL MENTION

Dr. John G. Grant, for the past six years resident physician and assistant professor of hygiene at the Iowa State College Hospital in Ames, has been promoted to the position of head and professor of the department of hygiene, to take the place of Dr. J. F. Edwards, who was retired from the position because of the age limit ruling. The appointment is effective July 1.

Dr. Fred M. Smith of Iowa City was in Minneapolis, Wednesday, May 6, to speak before the Eighty-third Annual Session of the Minnesota State Medical Association. Dr. Smith's subject was "Concerning the Prognosis and Certain Aspects of the Treatment of Coronary Artery Disease."

Dr. Charles B. Taylor, formerly of Ottumwa, journeyed from his present home in Upland, California, to attend the Eighty-fifth Annual Session of the Iowa State Medical Society, held in Des Moines, April 29 and 30, and May 1. Dr. Taylor was president of the Iowa State Medical Society in 1934.

Dr. Paul M. Moore, Jr., assistant professor in the otolaryngology department of the University of Iowa, College of Medicine, has resigned to accept a position as head of the otolaryngology department at the Cleveland Clinic, Cleveland, Ohio.

Dr. H. A. Bolstad, after practicing for more than twenty years at Boyden, has moved to DeSoto, Wisconsin, where he will continue in the practice of medicine.

Dr. Harold L. Brereton of Emmetsburg spoke at a public meeting, held in Emmetsburg, Friday, May 15, sponsored by the Whittemore Community Club. Dr. Brereton addressed the gathering on "Medicine's Obligation to the Community."

Dr. C. V. Morrison, who was graduated from the State University of Iowa, College of Medicine in 1933, has located in Grinnell, and has established his offices in those formerly occupied by Dr. O. F. Parish. Dr. Morrison served his internship in Detroit, and comes to Grinnell from Independence, where he has been serving as staff surgeon at the state hospital.

Dr. W. H. Gibbon of Sioux City, was elected president of the Iowa X-Ray Club, at the recent annual meeting of that organization held in Des Moines.

#### MARRIAGES

The marriage of Miss Rita Rose Dougherty of Manila, and Dr. H. W. Mathiasen of Persia, took place Monday, May 25, at St. Ambrose Cathedral in Des Moines. Following a motor trip through the eastern states, the young couple will return to Persia, where Dr. Mathiasen has been practicing for the past three years.

At Albany, Missouri, on Friday, May 15, Miss Thelma Mae Austin of Albany, became the bride of Dr. C. D. Oelrich of Sioux Center, Iowa. Immediately after the ceremony which took place at the bride's home, Dr. and Mrs. Oelrich left for Sioux Center, where they will make their home.

Miss Dorothy Nafus of Nashua and Dr. Carl V. Morrison of Eagleville, Missouri, were united in marriage at the First Congregational Church in Nashua, Saturday, April 25. After a short wedding trip Dr. and Mrs. Morrison will return to Grinnell, where the groom has just entered the practice of medicine.

#### DEATH NOTICES

Olson, Oscar Evald, of Red Oak, aged forty-four, died May 5, in a Council Bluffs hospital. Immediate cause of death was scarlet fever, but Dr. Olson had had diabetes for some time. He was graduated in 1921 from the University of Nebraska College of Medicine, and at the time of his death was a member of the Montgomery County Medical Society.

(Continued on page 327)



# HISTORY OF MEDICINE IN IOWA

*Edited by the Historical Committee*

DR. FRANK M. FULLER, Keokuk

DR. TOM B. THROCKMORTON, Des Moines

DR. JOHN T. MCCLINTOCK, Iowa City

DR. WALTER L. BIERRING, Des Moines

DR. PAUL W. VAN METRE, Rockwell City

DR. WILLIAM JEPSON, Sioux City

## History of Drake University College of Medicine\*

FERDINAND J. SMITH, B.S., M.D., Milford, Iowa

(Continued from last month)

The installation program continued on November 24, with a medical clinic conducted by Dr. Arthur R. Edwards of Chicago at Mercy Hospital and a surgical clinic by Dr. John B. Deaver of Philadelphia. Portions of these clinics are hereby reproduced.

Medical Clinic by Dr. Arthur R. Edwards

"The patient is a housekeeper, forty-four years of age, who has had ten children, all but one still living. Her family history is negative. Two months ago the patient noticed an enlargement of the spleen. On October 16 the spleen was enlarged nearly to the umbilicus, but there was no enlargement of superficial glands. The urine is negative. The blood count shows 3,300,000 red cells, the hemoglobin 90 per cent, and the white corpuscles total 160,000, of which leukocytes, the lymphocytes total 99 per cent, and most of them are of the small type.

"The patient is seen to be fairly well nourished, and without even making a superficial examination, we notice at once she has an enlargement of the abdomen. You see that the patient, as the count would indicate, outside of the possible flush that might come from being brought here, has a fair color as well as fair nutrition. On examination first what appears to be the most striking point, both in her history and on inspection, there is seen in the abdomen a swelling which occupies, as you notice chiefly the left side of the abdomen, and probably more its upper than its lower part. In this enlargement there is noticed a distinct prominence, you might almost say an edge, at this

point, which enlargement passes downward from the respiratory inflation. On the right side we can distinctly feel—and probably also it will be demonstrated even at this distance—the edge of the liver. As the patient takes a deep breath, you see it slide distinctly under the finger, the edge of the liver being somewhat firm and by deep breathing can be pressed over to this point, where it disappears beneath the edge of the spleen. And then this prominence, which is clearly noticed, I think, even at a distance, can by pressure of deep inspiration be brought up so as to show clearly the edge of the organ, in which there is felt at this point a notch; possibly also another here, although not as clearly to be demonstrated as the one at the epigastrium; the organ is fairly firm, and reaches down to this point, where its edge disappears behind the pelvis.

"Clearly then from its inspection, and the fact that we find its edge, and above all, the crenac or notches in the spleen, we are dealing with an enlarged leukemic spleen. On percussion this flattens, you see, almost to a level with the normal location of the apex, and there is flatness down to the palpable edge. When the patient takes a long breath, this flatness is shown to be sub-phrenic, because it moves so distinctly with respiration.

"The record shows very little enlargement of the lymph glands. The lymphadenoid kernels are barely palpable behind the external mastoid, but probably not much more palpable than we might frequently feel in a normal individual, at least, we lay no stress upon their enlargement; also

some here behind the clavicle, although they can't be clearly outlined.

"Glands are barely palpable in the submaxillary region. They can be seen as they are held in the finger, when it is allowed to escape, just as I felt the edge of the spleen and the liver, but it has been a striking point in this case that the glands have not been enlarged long, nor to any great extent. When the patient first came, as I understand, under Dr. Priestley's observation, the glands were barely palpable and not essentially enlarged. Now also they can be felt in the groins, as well as in the cervical and axillary regions, but are not to be felt at the elbow. An examination of the throat shows that both tonsils are considerably enlarged, more particularly the right tonsil. That falls in with the case of which Dr. Bierring and Dr. Prentiss were speaking last night, in which a patient with leukemia had, as the sole obvious evidence of the disease, an enlargement of the cervical glands, but with a massive hypertrophy of the tonsils and an enlargement of the cervical glands. There is in these tonsils absolutely no sign of necrosis and there is no infiltration of the gums.

"She has a little epigastric tenderness. There is a distinct tenderness of the sternum, as is often the case; no tenderness, apparently of the shins. And there is a tenderness, apparently, in the epigastrium and a pain, which is not unnatural from the degree of enlargement, both of the liver, but particularly of the spleen, where, as the viscera enlarge, the capsule is rendered tense, and, as is very often the case, there develops over this tense capsule, which often later is seen to be thickened, a certain degree of either perisplenitis or perihepatitis. The apex beat appears to be nearly in the normal location, despite the fact that you would expect to find a certain degree of tilting outward, as we might in pregnancy, from the enlarged abdomen.

"On percussion of the chest we find a normal resonance, and, without going into unessential points, practically the normal limitations of pulmonary and cardiac outlines. There is heard in the neck a venous hum—what we might well take to be a functional—and an anemic systolic murmur over the base, but also heard with somewhat diminishing intensity toward the right side of the heart and toward the apex. The patient has shown no hemorrhages. There is here in the subcutaneous tissue just above the elbow a distinct ecchymosis, and during the various blood counts that were taken the patient showed a tendency to bleed from the points of the puncture. The lower extremities show nothing except the varicosities and the dilatation of some of the small capillaries.

This whole trouble has only run along over a couple of months, according to Dr. Priestley. It would probably cover a month longer—practically only two or three months for the clinical history.

"We have here, then, the findings which would go with the history indicated, a lymphatic leukemia, and probably more of the chronic than the acute type. One would think that, first, because of the general condition of the patient; and although the clinical observations cover only a couple of months or a little over that, still the general nutrition of the patient, the lack of more disseminated, diffuse hemorrhages, especially into the mouth or into the skin, the absence of any necrotic or infiltrated troubles of the mouth, (because we know that the acute type of leukemia is very apt to produce local leukemic infiltrations of the mouth, and especially in the tonsils, with hemorrhages and subsequent necrosis,)—all these points would tend to make one feel certain, even on this superficial examination, that this was a case of chronic rather than acute lymphatic leukemia. In the blood count the striking features are not merely the large number of leukocytes, which number in itself is not so remarkable as the fact that of these leukocytes fully 99 per cent of all the white cells, are of the lymphocyte type.

"The next point in which this case rather differs from the usual case is that we have by far more enlargement of the spleen than is common in the lymphatic leukemia proper, and not as much enlargement of the lymph glands as is common. If we look on the disease as one of the blood making organs, there are several points that might come out as to the treatment of the case and its prognosis. In the first place, one would naturally ask himself how it is that in these leukemias we have enlargements of the lymph structures—both the ordinary lymph structures and the glands of the analogous structure, as the tonsils, which show clearly hyperplasia; and how we explain, next, the enlargement of the spleen. We have here, then, a moderate although systematized enlargement of the glands, and an enlargement of the spleen which is more of the type or degree that we would expect to meet in what is known as splenomedullary leukemia, in which the lymphocytes do not prevail, but certain modifications of the leukocytes, the myelocytes and so on. Now it is probable that we should look on all these cases of leukemia as a disease whose origin is not so much different in its different types, although the clinical picture differs; yet probably most of the leukemias, both the acute and the chronic, and the so-called myelogenic, are diseases of the bone marrow itself, with wholly secondary participation of other organs.

"In this case the query has arisen as to whether



the patient should be treated by medical means, or whether, on account of the rather solitary enlargement of the spleen, it might possibly fall within the province of surgery. If we look on all these cases, whether acute or chronic, myelogenic or of the so-called lymphatic nature, involving the abdominal region and the lymph glands, or whether we look on this case—which is of course excluded by the blood picture, as of the myelogenic type, yet we come back constantly to the important pathologic and therefore therapeutic, origin of the lesions in the bone marrow. Modern investigations into leukemia rather favors this view, although of course the subject is extremely complicated, as to the origin of the cells and their function and the functions of the bone marrow. The view must be favored, however, that the disease is one of the bone marrow, and that the other organs are affected by metastases, we might say; if we have the overproduction of this or that type of lymphocyte, these cells infiltrate various organs, for example, the liver; or we here find enlarged lymph glands, the liver, tonsil, the spleen. And while surgery might be considered, and some would advocate the removal of the spleen in this condition, yet if we look on this patient as exhibiting a blood disease, and therefore with the prominent, possibly the sole etiologic condition in the bone marrow, it could hardly be considered as coming under this head. Therefore I would feel, although knowing that others could easily take a different opinion, that it would be better in this case to treat the patient by arsenic, which sometimes is of value, and to treat both the enlarged glands and the bones, where they are exposed close to the skin, like the sternum, the tibia, and so on, with the x-ray, and also treat the enlarged spleen by that means, rather than invoking surgical extirpation of what is, after all, merely a metastatic involvement."

"The next patient was that of a man, thirty years of age, who had been ill, first with tonsillitis, which was followed within six days by pneumonia. The pneumonia lasted nine days. Following the pneumonia there developed two abscesses, one on each side of the hip. That was two weeks after, and in another week an abscess developed on the back. After two more weeks the patient developed an empyema, which was opened and drained for two months. This was in September. On November 17 he developed an abscess in the left thigh which is his trouble at this time. A surgical operation was recommended."

"The third patient was expectorating much pus and on occasion it had a very putrid odor. Examination showed that he had an abscess cavity in the lower lobe of the right lung."

"The fourth case was that of a youth seventeen years of age, who had scarlatina, which was followed by a nephritis, from which he is now suffering. He is passing numerous casts, and has plenty of albumin in the urine. He was ordered to bed, and to remain there until there were no more casts, nor any more albumin in the urine. He also was given an appropriate medicinal treatment, and a proper diet."

#### Surgical Clinic by Dr. John B. Deaver

"It is with very great pleasure indeed that I am here this morning and greet my friends in Iowa. I had the pleasure of appearing last night before an Iowa audience in my dress clothes, but now I am in my working clothes, and I think I feel a little more comfortable here than I did last night. It is, of course, only embarrassment to operate before such a large number.

"I will not speak of this case other than from the operative standpoint. You have heard so much this morning and so well by our colleague from Chicago that I would hesitate to speak of the symptomatology, particularly in his presence. I am sure that we are in accord. There was a time, as you well know, when medical men and surgeons were far apart in connection with the subject of appendicitis, but today they are together, and the consequence is, they know as much about the diagnosis and the advisability of operative interference as the surgeon; therefore my remarks will be confined to the surgical side of it, and more particularly to the mechanical side.

"I do not know anything about the history of this patient except what Dr. McCarthy told me a moment or two ago. There is no doubt about the patient having trouble in his abdominal cavity. I will discuss the various operations done for this condition. The operation which I personally prefer in the majority of the cases, not that it is feasible in every case, is the McBurney operation. I like to call it the McBurney operation, not only because it was originated by McBurney, but because it has been my pleasure to know him for a number of years, and I have regarded him as one of the master surgeons of the age. I saw, by the way, McBurney's surgical drawings before his article appeared, and it was my pleasure to go over the drawings with him from the anatomical standpoint, and I was struck with the admirable qualities of the operation mapped out by him, and which has stood so well for these many years. I believe where the case is such that it is feasible to do this operation, and the patient gets a better abdominal wall, other things being equal, than by any other operation. I do think, however, it is not an operation for the novice; I think he should

have some experience in this line of work before he attempts the McBurney operation, as there are more difficulties in operating through that incision than through the ordinary perpendicular incision. Furthermore, it is very much easier to enlarge your incision for one who does not do many abdominal operations. For those of us who do many, it is just as simple to enlarge by this route as through the rectus. I do nearly all my acute cases through the McBurney incision. I do not do it in the presence of students, but in the presence of doctors. I have long since learned that it is not a good thing to do complicated operations in the presence of medical students, but in the presence of doctors it is a different thing altogether. The McBurney incision is very readily enlarged, in the majority of instances, sufficient to give you access by pulling over the rectus muscle and dividing the posterior sheath. Where you want more room, it is an easy matter to throw aside the rectangular flap, and you can get all the room that is necessary."

Following this first operation there were two appendectomies performed for chronic appendicitis, one for a pelvic abscess, one for a pyosalpinx, and one for a double pyosalpinx, and finally a goiter operation.

On November 25 Dr. Van Buren Knott conducted a surgical clinic at Mercy Hospital. The first operation was an appendectomy. This was followed by an operation for the relief of uterine retroversion, by the Alexander procedure. The same patient had also a repair of a laceration of the uterus. The last case was one of scrotal varicocele; the veins concerned were ligated.

Dr. R. A. Gifford, of Omaha, conducted an eye clinic at Mercy Hospital. The first case was one of long standing trachoma with ectropion. The next case was a bad corneal burn, due to a splash of molten iron. In a case of convergent strabismus a double tenotomy was made for its relief. The final case was one of pterigium, which was immediately operated upon in the usual way.

The faculty of the junior medical college desired to improve, as much as possible, the instruction given the students in the basic science years. To further this objective an entirely new schedule of studies was devised and tried out during the school year 1909 and 1910. The new venture was so satisfactory to the students and teachers alike that it continued in force throughout the remainder of the life of the school.

The periods of instruction were for four hours, in the forenoon and again in the afternoon, throughout the entire school year. For freshmen, histology and embryology came every forenoon in

the first half year, followed by a course in biologic chemistry the second half year. Through the entire first year anatomy was taken every afternoon. One hour of preparatory didactic instruction was followed by three hours of laboratory work. Every afternoon during the entire second, or sophomore year, was devoted to bacteriology and pathology, except in the second semester, when there was a fifty hour course in physical diagnosis from four to five o'clock on Mondays, Wednesdays and Fridays, and a course in minor surgery at the same hour every Tuesday for twelve hours. The forenoons of the second year, until January, were devoted to physiology, in January there were courses in practical pharmacy and toxicology, and physiology was continued during February and March, and followed by a course in pharmacodynamics lasting until the end of the term.

Drs. Mendenhall and Begg, who were sponsors of this modification in teaching the basic sciences, and who are at this time teachers in Boston University Medical College, say that a similar method is pursued in both Harvard and Boston Medical Colleges.

In the spring of 1910 President Hill M. Bell called a meeting of the medical faculty and announced to them that at the close of the school year the medical college would have to be discontinued, since the university could no longer finance it. This was very bad news for the medical faculty, just at a time when the medical department was really able to look forward to a bright future; but it was the student body who took it the hardest. They waited on the Dean of the Junior College bright and early the next day, to see if something could be done to insure a continuance of the college. They offered to help in every way they were able. As most of these young men and women were working their way through college, having part time jobs during the school year and full time jobs the rest of the year, something which it was practically impossible for them to obtain on short notice anywhere else, it threatened the end of their medical career.

The Junior Dean suggested to these students that if a campaign to raise funds for the use of the medical department were put into action, obtaining first the cooperation of the Des Moines newspapers, then of the business men, manufacturers and others, it might be accomplished. The campaigners might carry banners with the slogan "Save the Medics!" It would be necessary for them to enlist the help of the college band and the students of the other departments. In any case, it could do no harm, and it might lead to their goal. The students were more than willing to do this. The Junior Dean took this matter up with



President Bell, who would not hear of it, and forbade the enterprise.

This information was brought back to the students, who were much disappointed. However, Dr. Smith told them to go ahead without the president's consent.

By about ten o'clock the Drake University band and practically every student of the university were in the parade and on the way to the business district. Their committees met the editors and proprietors of the newspapers and received from them promises of cooperation. They also visited many of the business men of the town and others concerned and were much encouraged by the responses.

All the newspapers carried articles calling upon the people to support the Medical College and the University, a committee recruited from the business men, the faculty, with President Bell himself, and many others put on a flying campaign, and in a very short time the battle was won. The then sophomore class deserves much praise and credit for this. They had made up their minds to turn defeat into victory, and it was victory which resulted from their efforts. The campaign resulted in the pledging of \$150,000.00, to be available in five yearly installments.<sup>16</sup>

Through the efforts of Dr. Bierring, the College was fortunate enough to secure the services of Dr. Alexander R. Robertson, a Canadian and a graduate of McGill University College of Medicine, to head the department of bacteriology and pathology. He remained with the college for one year, thereafter accepting a position with the Medical College in Vancouver, B. C. At the present time he is engaged in private practice in Seattle, Washington.

With the funds now available President Bell decided to enlarge immediately the senior medical college building. The enlargement would provide for the departments of anatomy, physiology, biologic chemistry, histology and embryology, and bacteriology and pathology. Each of these departments consisted of a student laboratory, a private laboratory, a store room, and a private office for the head of the department. A greatly increased space was made available for the use of the dispensary service. The library space was also much enlarged. A room was also made available where microphotographic work as well as natural color photography could be performed. It was equipped with the latest and best appliances.

Before the "Save the Medics" campaign the institution already possessed a very good working library, but after the campaign this received considerable additions. Additional books were purchased for use of the teachers and students hav-

ing to do with the fundamental sciences, with handbooks and encyclopedic works of reference. Dr. E. E. Door presented his large and well selected and up-to-date library of over twelve hundred volumes to the College Library. Standard European and American medical journals, bound and unbound, were on file in the library. Dr. Jean Mendenhall became the librarian. The students also had free use of the University Library, the City Library and the State Library.

Owing to the additional quarters available for the dispensary work, the service was greatly extended and improved and much modern equipment was installed. Being near the heart of the city and easily accessible was also a valuable asset for the dispensary. Examination and treatment rooms were provided for medical, neurological, pediatric, dermatologic, general surgical, orthopedic, genito-urinary, gynecologic, obstetric, eye, ear, nose and throat patients. To facilitate the making of chemical and microscopic examinations, a clinical laboratory was located on the same floor as these rooms. The dispensary pharmacy was placed under the care of a registered pharmacist. A small ward of five beds was connected with the service in which operative surgical treatments were carried out, especially designed for emergency cases. The daily attendance at the dispensary at that time averaged fifty cases. Sessions were held from one to three o'clock on six days of the week. During the year ending April 1, 1912, the total number of visits at the dispensary was 10,309.

On March 1, 1911, a tuberculosis dispensary was established, the sessions being held on Tuesday and Friday forenoons at eleven o'clock. Ridge Camp Sanatorium for advanced cases was then under the supervision of the College of Medicine and offered additional advantages for the study of tuberculosis. On the second floor two rooms had been completely equipped with x-ray and other electric appliances of the latest and most approved patterns, in which all forms of examinations and treatments pertaining to this branch could be properly conducted. The dispensary afforded unusual opportunities to both the third and fourth year students for the study of ambulant patients. Dr. John H. Peck was the director of the dispensary.

The facilities for teaching clinical medicine for the school year 1912 and 1913 were unusually good. By special arrangements the College of Medicine then controlled for clinical purposes five hundred beds in the hospitals of Des Moines. Of these the Iowa Methodist and Mercy Hospitals furnished one hundred and fifty ward beds; the Salvation Army Rescue Home from five to ten

cases of obstetrics each month; the Children's Home had a capacity of forty beds; the Detention Home, fifty beds, and the Polk County Hospital had constantly two hundred and twenty-five or more patients, for the most part with mental and other chronic diseases. At the first two hospitals mentioned clinical laboratories and lecture rooms were provided for teaching purposes. In each the operative department and the equipment for the treatment of diseases by means of electricity, x-ray, hydrotherapy, orthopedic and other physical measures was of the most modern type.

It was necessary to fill immediately the vacancies caused by the resignations of Drs. Robertson and Hoeve. Dr. Paul Lineback, who was at the time taking postgraduate work in anatomy at Harvard, applied for the position vacated by Dr. Hoeve. He was engaged as professor of anatomy and head of the department. Dr. Daniel J. Glomset was engaged to fill Dr. Robertson's position in the pathology and bacteriology department. He came to the college from the University of Chicago and Rush Medical College. Dr. Begg was made head of the department of histology and embryology.

(To be continued)

#### LYON LECTURESHIP ESTABLISHED

At the close of the present academic year, Dr. E. P. Lyon, Dean of the Medical School, retires from active service at the University of Minnesota. During his administration, covering a period of twenty-three years, the medical school has exhibited steady and continued growth. As a fitting tribute to his stimulating leadership, the alumni and faculty of the medical school propose to establish in his honor the Elias Potter Lyon Medical Lectureship at the University of Minnesota. The fund for this purpose is to be raised through subscriptions by alumni, faculty, students, and friends. Contributions to the Lyon Lectureship fund may be sent to Mr. William T. Middlebrook, Comptroller, University of Minnesota, Minneapolis.

#### RESOLUTIONS

With the death of Dr. C. H. Stange of Ames, Iowa, which occurred on the morning of April 26, 1936, there passed from the fellowship of our allied profession a loyal and faithful co-worker. His life was one of service to his fellowmen. Ethical and unselfish and wholly devoted to his work he attained an enviable position in life.

Therefore be it resolved that the membership of the Iowa State Medical Society extend to his wife and two daughters our sincere sympathy in their bereavement, recognizing the deep sorrow attending the loss of a faithful husband and father.

Furthermore, that in the death of Dr. Stange the Iowa State College lost one of its ablest and most

widely known educators, and the Iowa Veterinary Medical Association a prominent and nationally recognized member.

Be it further resolved that a copy of these resolutions be made a part of the permanent records of the Iowa State Medical Society; that a copy be presented to the Iowa Veterinary Medical Association; that a copy be presented to the family, and that a copy be sent to the JOURNAL OF THE IOWA STATE MEDICAL SOCIETY for publication.

COMMITTEE:

F. M. Roberts, M.D.  
E. J. Watson, M.D.

#### DEATH NOTICES

(Continued from page 321)

Cadwallader, Joseph Maxwell, of Sheffield, aged fifty-two, died May 23, following an extended illness. He was graduated in 1907 from the State University of Iowa, College of Medicine, and at the time of his death was a member of the Franklin County Medical Society.

Coldren, Cassius Mentor, of Milford, aged seventy-five, died May 10, after a two year illness. He was graduated in 1889 from the University of Michigan Medical School, and had long been a member of the Dickinson County Medical Society.

Stoner, Alva Porter, of Des Moines, aged sixty-eight, died May 31, of pneumonia. He was graduated in 1891 from the St. Louis College of Physicians and Surgeons, and at the time of his death was a member of the Polk County Medical Society.

#### DR. CAMPBELL HOWARD DIES IN CALIFORNIA

The many friends and associates which Dr. Campbell Howard of Montreal, had in Iowa, will be shocked and saddened by the news of his death, which comes as the JOURNAL goes to press. Death occurred suddenly in California, where Dr. Howard was a guest speaker on the program for the California State Medical Association, and where he was being entertained by his Iowa colleague, Dr. Charles J. Rowan.

Dr. Howard, who was professor of medicine at McGill University Faculty of Medicine, Montreal, came to the State University of Iowa, College of Medicine, in September, 1910, filling the position of professor of medicine and head of the department. Dr. Rowan at this time was professor of surgery. Dr. Howard remained in Iowa until he enlisted for service in the World War, and returned for a short time afterward. He was the guest speaker for the Eightieth Annual Session of the Iowa State Medical Society, held in Des Moines in 1931, and had been selected as the choice of the section on medicine for next year's annual meeting to be held in Sioux City.

The medical profession in general has suffered a distinct loss, and there are many physicians in Iowa who will look upon Dr. Howard's death as a personal loss.



# THE JOURNAL BOOK SHELF

## BOOKS RECEIVED

- ABORTION, SPONTANEOUS AND INDUCED, MEDICAL AND SOCIAL ASPECTS**—By Frederick J. Taussig, M.D., professor of clinical obstetrics and clinical gynecology, Washington University School of Medicine, St. Louis. C. V. Mosby Company, St. Louis, 1936. Price, \$7.50.
- BASAL METABOLISM IN HEALTH AND DISEASE**—By Eugene F. DuBois, M.D., medical director, Russell Sage Institute of Pathology. Third edition, thoroughly revised, illustrated with 98 engravings. Lea and Febiger, Philadelphia, 1936. Price, \$5.00.
- BEWILDERED PATIENT**—By Marian S. Newcomer, M.D. Hale, Cushman & Flint, Boston and New York, 1936. Price, \$1.75.
- DENTAL INFECTION AND SYSTEMIC DISEASE**—By Russell L. Haden, M.D., chief of the medical division, Cleveland Clinic, Cleveland. Second edition. Illustrated with 63 engravings. Lea and Febiger, Philadelphia, 1936. Price, \$2.50.
- EXAMINATION OF THE PATIENT AND SYMPTOMATIC DIAGNOSIS**—By John Watts Murray, M.D. With 274 illustrations. Second edition. C. V. Mosby Company, St. Louis, 1936. Price, \$10.00.
- AN INDEX OF DIFFERENTIAL DIAGNOSIS OF MAIN SYMPTOMS**—Edited by Herbert French, M.D., consulting physician to Guy's Hospital, London. Fifth edition, with 742 illustrations, 196 in color. William Wood and Company, Baltimore, 1936. Price, \$16.00.
- MEDICAL MYCOLOGY, FUNGUS DISEASES OF MEN AND OTHER MAMMALS**—By Carroll William Dodge, Ph.D., mycologist, Missouri Botanical Garden. Illustrated. C. V. Mosby Company, St. Louis, 1936. Price, \$10.00.
- MEDICAL PAPERS**—Dedicated to Henry Asbury Christian, from his present and past associates and house officers at the Peter Bent Brigham Hospital, Boston, Massachusetts. The Waverly Press, Baltimore, 1936.
- PEDIATRIC NURSING**—By John Zahorsky, M.D., professor of pediatrics, St. Louis University School of Medicine. With 144 illustrations and seven color plates. C. V. Mosby Company, St. Louis, 1936. Price, \$3.00.
- PHYSIOLOGY OF LOVE**—By Professor Paolo Mantegazza. Eugenics Publishing Company, New York, 1936. Price, \$3.00.
- PSYCHOLOGY OF SEX**—A Manual for Students by Havelock Ellis. Emerson Books, Inc., New York, 1935. Price, \$3.00.
- SYNOPSIS OF CLINICAL LABORATORY METHODS**—By W. E. Bray, M.D., professor of clinical pathology, University of Virginia. Thirty-two text illustrations, eleven color plates. C. V. Mosby Company, St. Louis, 1936. Price, \$3.75.
- A TEXTBOOK OF SURGERY**—By American authors, edited by Frederick Christopher, M.D., associate professor of surgery at Northwestern University Medical School. With 1349 illustrations. W. B. Saunders Company, Philadelphia and London, 1936. Price, \$10.00.

## BOOK REVIEWS

### ALLERGY OF THE NOSE AND PARANASAL SINUSES

By French K. Hansel, M.D., assistant professor of clinical otolaryngology, Washington University School of Medicine. With fifty-eight text illustrations, and three color plates. C. V. Mosby Company, St. Louis, 1936. Price, \$10.00.

Because of the tremendous volume of information acquired through recent researches on the subject of allergy only a few individuals have been permitted to keep abreast of the subject. Inasmuch as the most frequent site for the production of symptoms in clinical allergy is the upper respiratory system, it is timely that a comprehensive monograph on the subject should be prepared by an authority well fitted for the task.

To introduce the subject Dr. Hansell reviews the basic discoveries and observations which have guided research and by which the phenomenon of allergy is explained. This is followed by a careful discussion of the methods of testing, history taking and observation of the patient to determine the offending agent or agents. He then discusses the manifestations of allergy as they are observed in the upper respiratory tract, giving in detail the special methods of examination required in these cases. He next presents the treatment of allergy including the common forms of seasonal hay fever from the grasses and weeds stressing particularly the common ragweed variety.

Comprehensive bibliographic citations are furnished for the aid of the advanced student in this

subject. This monograph is strikingly complete and easily the most useful work of its sort which has come to our attention.

### EXAMINATION OF THE PATIENT AND SYMPTOMATIC DIAGNOSIS

By John Watts Murray, M.D. Second edition, with 274 illustrations. C. V. Mosby Company, St. Louis, 1936. Price, \$10.00.

In the preface to the first edition of this work, which appeared in 1926, the author expresses the belief that the failure of a physician to make a proper diagnosis is usually due first, to an incomplete or carelessly analyzed history; second, to his lack of a comprehensive technic in physical diagnosis; and third, to his inability to trace the symptom picture through texts which might assist him in arriving at a diagnosis. To overcome these difficulties the author prepared this work, which stresses history taking and offers schemes for not only obtaining a complete medical history but, also, methods of analysis which will establish proper values from the material obtained.

In a second section of the book, he describes methods of physical diagnosis applicable both to the general examination of a patient and, also, special methods which may be required for the detection of involvement of the special organs. He then presents a scheme of differential diagnosis based upon symptoms which should serve to remind the physician of the various possibilities in each case

and, also, to assist him in eliminating many of the several conditions considered.

The text contains 274 illustrations. Many of the photographic illustrations are taken from the older literature and appear to have suffered from the loss of clearness and detail in their reproduction. On the whole, the work should prove useful to the physician who will familiarize himself with its possibilities and carefully follow the suggestions made by the author.

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#### ANNUAL REPORT OF THE SURGEON GENERAL OF THE PUBLIC HEALTH SERVICE OF THE UNITED STATES

For the fiscal year 1935. United States Government Printing Office, 1935. For sale by the Superintendent of Documents, Washington, D. C. Price, seventy-five cents.

This report is introduced by a section on world health conditions inasmuch as these conditions are reflected in the United States. The report indicates the agencies and methods employed in the inspection of health conditions, the findings of these various agencies, and the recommendations which seem appropriate for the correction of the unfavorable health conditions reported.

Each of the various divisions of the service reports on the scientific work performed by the division with insight into the nature of the research work being undertaken in this connection. The National Institute of Health indicates by its report the valuable activity of this newly created division. The rehabilitation studies being conducted at the recently opened (May 25, 1935) narcotic farm at Lexington, Kentucky, constitute a very interesting and informing discussion of this new venture on the part of the federal government.

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#### INFANT NUTRITION

By Williams McKin Marriott, M.D., professor of pediatrics, Washington University School of Medicine, St. Louis. Second edition. C. V. Mosby Company, St. Louis, 1935. Price, \$4.50.

The author of this volume is eminently equipped by virtue of his excellent clinical facilities to prepare a treatise on this subject, and the enthusiastic reception accorded the first edition of this work indicates the usefulness of the volume as a clinical guide in infant nutrition.

In the opening chapters of the book, the author discusses proteins, carbohydrates and fat metabolism, and in an entirely rewritten chapter advances our newer knowledge concerning vitamins. He then proceeds to a discussion of the special food requirements of infants, considering both breast feeding and artificial feeding in normal infants. In the closing chapters the author emphasizes the food re-

quirements of infants in diseased conditions and under each heading, describes in detail proved recipes and formulas suitable in the specific conditions. The final chapter deals with laboratory tests and technic, particularly those of value in pediatric practice.

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#### KEY TO SYMPTOMATOLOGY, BOOK VI, GYNECOLOGIC DISEASES

By D. D. Stonecypher, Nebraska City, Nebraska. Key System, Publishers, Nebraska City, Nebraska. Price \$10.00 a volume.

This book follows the general plan of those previously released in that it provides a handy and quick reference to the probable diagnosis by the use of key cards of leading symptoms. A master card is so made that the possible diagnosis is revealed when the symptom card is superimposed on it. Where several symptoms are revealed the diagnosis becomes more limited due to the blocking of certain windows in the symptom card previously employed.

While the system has been devised with careful reference to current gynecologic and obstetric literature, it is not intended in any sense to replace the physician's knowledge of these subjects or his skill in the observation of his patient. It is intended rather to bring to his attention all possible diagnoses and thereby suggest the procedures required to establish a complete and accurate diagnosis in a given case.

Provision has been made for the revision of the system from time to time as our knowledge of these subjects is extended, and we are advised that the publishers contemplate this revision at a very nominal cost. The system appears entirely satisfactory for the purpose for which it has been prepared.

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#### THE SPECIAL PROCEDURES IN DIAGNOSIS AND TREATMENT

By Don Carlos Hines, M.D., clinical instructor in medicine, Stanford University. Published by the Stanford University Press.

This small book has been prepared for the guidance of house physicians and fourth year medical students at Stanford University School of Medicine. It is based upon the experience of the medical staff of the University Hospital and succeeding generations of house officers in the pursuit of their duties in this institution. It is intended solely as a brief guide in procedures necessary to careful and efficient ward work.

The author covers such subjects as the general hygienic methods of a hospitalized case, subcutaneous medication, the use of stomach tubes, local methods of counterirritation, thoracentesis, abdominal paracentesis, pericardial paracentesis, etc. After having reviewed several outlines devised for the guidance of senior students and internes, we are impressed with the unusual merit of this pocket size outline, and heartily commend it for the purposes intended.



### THE 1936 YEAR BOOK OF DERMATOLOGY AND SYPHILOLOGY

Edited by Fred Wise, M.D., professor of clinical dermatology and syphilology, New York Postgraduate Medical School; and Marion B. Sulzberger, M.D., assistant professor of clinical dermatology and syphilology, New York Postgraduate Medical School. The Year Book Publishers, Chicago, 1936. Price, \$3.00.

In the introduction to this volume, the authors present a discussion of the modern treatment of eczema as a guide for the general practitioner, which in itself is well worth the price of the volume. The authors feel that the physician should become intimately familiar with the indications for and the uses of a number of the drugs used in skin therapy, and with this knowledge and a careful observation of lesions, the general practitioner should achieve success with the average case of eczema which may come to his attention.

While the past year has not been marked by any outstanding discoveries in the field of dermatology and syphilology, many original observations have contributed to the exactness of these sciences. In the 700 pages of this volume, the authors epitomize the outstanding contributions of the year with various pertinent editorial comments. At the close of each section is a comprehensive bibliography of important literature in the particular field. The volume is fully illustrated and indexed.

### PARENTERAL THERAPY

By Walter Forest Dutton, M.D., director, Medical Research Laboratories, Amarillo, Texas; and George Burt Lake, M.D., editor, Clinical Medicine and Surgery. Illustrated with 90 halftones and line engravings. Charles C. Thomas Publishing Company, Springfield, Illinois, 1936. Price, \$7.50.

Therapy today employs "parenteral" therapy far more extensively than at any time in its written history. This is so strikingly true that we observe the physician today equipped with a well filled hypodermic case, a few local applications and his instruments for examination almost completely replacing the picture of a generation ago when the physician's bag was a miniature apothecary shop, with row on row of bottles of tablets, pellets and liquids for oral administration. In recognition of these facts and to bring the subject matter into small compass for ready reference, the authors have compiled this very complete and convenient reference volume.

As used by these authors, the term "parenteral" designates all forms of medication except those introduced through the alimentary canal. They present methods of performing all of the usual and most of the less common procedures employed in the therapeutic withdrawal of materials from the body or the introduction of drugs into the body by means other than the mouth. They discuss the

methods of blood transfusion, the technic for the puncture of the pericardium, the pleura, the cavities of the brain and spinal cord, including the technic of intraspinal anesthesia. In the closing chapters of the first part of this work the authors discuss the injection treatment of hemorrhoids, of hernia, and of hydrocele.

Part two lists under common headings the conditions responding to this form of therapy with suggestions of the form of therapy commonly employed. Part three of the text presents an alphabetically arranged listing of the more useful drugs for parenteral therapy. These sections furnish a quick and practical section of reference for use by the busy physician during the course of his daily routine.

To add further to the usefulness of the volume an index of subjects with a cross index by names to the first part of the volume is given. To our knowledge the volume is entirely unique, comprehensive, accurate and invaluable to the busy practitioner of medicine.

### PASSIVE VASCULAR EXERCISES AND THE CONSERVATIVE MANAGEMENT OF OBLITERATIVE ARTERIAL DISEASES OF THE EXTREMITIES

By Louis G. Herrmann, M.D., assistant professor of surgery, College of Medicine of the University of Cincinnati. Illustrated with 80 engravings and four colored plates. J. B. Lippincott Company, Philadelphia and London, 1936. Price, \$4.00.

During the past few years there has been an ever increasing interest shown in the subject of passive vascular exercise therapy in peripheral vascular disease. In his introduction to the Year Book of General Surgery for 1935, Evarts Graham states: "One of the most striking features of the surgical literature of the last year is the increasing number of articles which appear on the subject of peripheral vascular disease."

It seems particularly fitting and timely, then, that the originator of a satisfactory method for treating these conditions should prepare a text giving a complete review of the subject from its earliest conception to its most recent perfection. Dr. Herrmann describes his method for the treatment of peripheral vascular disease as an apparatus which produces in sequence the gradual rise and fall of air pressure about the human extremities and indicates that he has not discovered but rather rediscovered this method of therapy. In appropriate chapters he discusses the historical development of our knowledge in this field, the anatomy and physiology of the peripheral vessels, the diagnosis of organic arterial disease, and then at much detail reviews his work and observations in the treatment of these conditions by passive vascular exercise.

This work is easily the most outstanding contribution to our knowledge on this subject and should be carefully reviewed by the physician who would successfully employ this method of therapy.

# The JOURNAL

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## Iowa State Medical Society

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No. 7

### PRESIDENT'S ADDRESS\*

THOMAS A. BURCHAM, M.D., Des Moines

I would indeed be ungrateful if I did not express my appreciation of the honor you bestowed upon me in giving me an opportunity to serve you as your president during the past year. I have had the pleasure of contacting many members of the society during my visits to the different district and county meetings; I have heard you discuss your problems; and have been keenly interested in the methods you employed in solving them. I am convinced that never in the history of the Iowa State Medical Society has so much interest been evinced in striving for the proper solution of our problems; and I am certain that a continuance of this manifest concern will serve to produce a stronger society and a more united profession. If my efforts have helped in the slightest degree in bringing about a solidarity within the profession, I am grateful. The pleasure I have had in serving you will always remain a cherished memory.

In the course of the past few years, the people of America have witnessed a great political and social upheaval. Schemes have been advocated to provide for social security, a more abundant life, redistribution of wealth, pensions, public health measures, and relief from indebtedness and unemployment. Some of these experiments really create a new deal for the American people. What has been the effect of these new methods and experiments on the medical profession? What changes have taken place in the actual care of the sick? What influence will these proposed changes have on the future practice of medicine?

Before these questions can be answered, or an opinion expressed, it is necessary to analyze the position which we, as a profession, now occupy and to realize how we attained this position. Less than a century ago (and that is a short time in the history of any nation) the practice of medicine was confined entirely to the individual family doc-

tor, inadequately educated and trained, whose equipment was very limited. He went his daily rounds, ministering to the sick, whose ailments were either organic or imaginary, but he did possess the art of practicing medicine and he fulfilled his duty as a physician in a very creditable manner. I would not belittle him, or minimize his importance to the community, but I would like to contrast his knowledge and equipment with that of the present day physician, referring particularly to the methods used in the care of the sick.

Great advances have taken place since then, both in knowledge of disease and in equipment; knowledge gained only after years of study and application in one of our great educational institutions; knowledge gleaned by clinical experience in actual contact with the sick. Increasing requirements for a medical degree have materially added to the expense of a medical education; and to the time required in preparing for a medical career. Equipment is expensive both as applied to a physician's private office, and to the large hospitals and sanatoria; these institutions also have huge administrative costs as well as the salaries of the numerous technicians and nurses. All of these additional educational and equipment requirements have become a part of the cost of being sick. However, the equipment and personnel are necessary to carry out the advanced methods of diagnosis and treatment, which have resulted from the progress made in medical science.

This scientific advance has not been confined to medicine alone, but a like advancement may be noted along all lines of scientific endeavor, including better housing, modern sanitation, improved transportation, and new methods of communication. Our economic structure has not kept pace with these scientific advances; the individual has not progressed in increasing his income and savings to the point where he can purchase the material necessary to the high standard of living that is so desirable. The unrest so prevalent today is more or less the result of the experiments, now being made, to permit our economic structure to

\*Presented before the Eighty-fifth Annual Session, Iowa State Medical Society, Des Moines, April 29 and 30, and May 1, 1936.



catch up with the scientific; in other words, methods are being sought to permit all of the people to enjoy the benefits of our advanced scientific knowledge. To the medical profession the paramount question at this time is, "What method should be employed in bringing the benefits of this scientific progress to all the people?" I cannot answer that question. Whether some of the experiments now being tried will bring an answer, time alone will tell. We must await the verdict of history to reveal the success or failure of these plans.

The increased knowledge and the advancement in medical science have been accomplished by research and the application of this acquired information with a definite goal always in mind, i.e., the search for the cause and cure of disease; and the prolongation of life. These objects have been accomplished by men whose individual initiative had not been crushed by lay organizations controlled by politicians whose interests would have been primarily in a scheme to perpetuate themselves in office. Is our profession to be destroyed because of these very advances in scientific knowledge? Is it to be sacrificed through the efforts of a minority group who would benefit from the passage of measures changing the entire system for the care of the sick?

The people, who most ardently desire these changes, have failed to provide for themselves through their own thrift and independent effort. These issues have been freely debated during the past year, and I feel confident the people will decide in favor of the present system. Every country, that has attempted to inaugurate a plan of compulsory health and sickness insurance under the control of lay persons, has disintegrated. Changes have taken place, and science has advanced in this country until today America leads in scientific achievements and has progressed far beyond the attainments of any European country. No other country in the world can compare with America in lowered mortality and morbidity rates; or in public health measures so essential in the prevention of disease.

The Speakers Bureau of the Iowa State Medical Society has endeavored throughout the year to educate the lay people and the physicians to the value of scientific medicine. Speakers have been furnished to lay groups throughout the state and a study of the report of the Speakers Bureau shows the extent to which this educational program has been carried out. A continuation of this system will, in my opinion, prove one of the greatest factors in the prevention of state medicine. Once the people realize that any system, other than the one now in operation, is conducive to domination of the individual physician and less-

ened efficiency, I feel confident they will not seek immediate changes. The education of the people is essential, because they are the ones who pay the bills, and in the end, they will be the sole judges in choosing the method they prefer. In the process of deciding, there is a possibility they may fix upon the wrong plan because of undue influence exerted by persons not competent to pass judgment upon scientific matters. Only qualified members of the medical profession are in a position to direct such measures; and through continued education we hope to control the situation. Once the people realize the superior service obtained under proper medical supervision and guidance, they themselves will demand professional control.

#### SOCIAL SECURITY ACT

Upon the passage of the Social Security Act, the medical profession was immediately confronted with certain phases of the act which have a direct bearing on the profession, particularly in the carrying out of some provisions of the act. Other portions have only an indirect relation to the profession, except as they pertain to us as citizens and taxpayers and should be carefully studied from that standpoint. Perhaps the medical profession has been unjustly criticized because of its attitude toward certain provisions of the act, while in reality our opposition has been directed at the method of application, rather than against the plan itself. This is particularly true in regard to the Old Age Pension; Aid to the Blind; Aid to Dependent Children; and the like.

#### OLD AGE PENSIONS

No member of the profession questions the objectives sought in this measure; no one objects to an old age pension to take care of destitute citizens past sixty years of age, provided the sum allotted is within the limits of the taxpayers' ability to pay. As taxpayers we are apprehensive when the sum proposed reaches such proportions that it not only provides for the necessities of life, but also for luxuries which, in many instances, were never before enjoyed by the recipients. I have in mind the so-called Townsend Plan now being agitated, and the theory advocated by the late Senator Huey P. Long, "Every Man a King."

#### CRIPPLED CHILDREN

The definition of a crippled child, according to the Social Security Act, is any person under twenty-one years of age, with a physical disability. Funds appropriated for services for crippled children are to be used as outlined in Section 511 of the Social Security Act,\* which reads as follows:

\*H. R. 7260, 74th Congress, Social Security Act.

"For the purpose of enabling each state to extend and improve (especially in rural areas and in areas suffering from severe economic distress), as far as practicable under the conditions in such state, services for locating crippled children, and for providing medical, surgical, corrective, and other services and care, and facilities for diagnosis, hospitalization, and aftercare, for children who are crippled or who are suffering from conditions which lead to crippling."

According to an estimate made by the Commissioner of Health of Iowa, there are approximately 15,000 individuals in this state who will come under the provisions of this act. If the number of crippled children approaches this figure, it will be impossible to set up a system in the state whereby this number can be centralized at the University Hospital for either observation or treatment. A system should be established whereby the services of the physicians of the entire state could be utilized. The facilities of the University Hospital should be available for the unusual and interesting cases, always considering the good of the patient, and providing the best clinical material for the medical students. Under the Perkins, Haskell-Klaus law the facilities of the University Hospital have been taxed to the limit, and although the waiting list of persons committed has been eliminated through the quota plan, it does not follow that all of the people needing service have been receiving it. Prior to the establishment of the quota plan, there were approximately 5,000 persons on the waiting list, all legally committed. If, under the Social Security Act, an additional 15,000 people were to be hospitalized for observation and diagnosis alone, the facilities of the University Hospital would have to be materially increased. Even if the facilities could be arranged to care for this great influx of patients, the cost of their care would be greatly increased because of transportation charges to and from Iowa City. A statewide system should be set up under whatever state agency is to be made responsible by law for the administration of this act, in cooperation with the University Hospital, providing for local care and follow-up treatment for those cases necessarily hospitalized at the University Hospital.\* Provisions should be made for local hospitalization and treatment whenever feasible, with the cost to be paid by the state and federal governments. In matching federal funds with state funds (both your, the taxpayers' money) plans should be in the making for carrying out the provisions of the act, with a view to rendering service to the greatest number and assuring local hos-

pitals and physicians compensation for services rendered.

#### UNEMPLOYMENT INSURANCE

Unemployment insurance is a method of compulsory saving advocated by the federal government. Theoretically, it is ideal, providing the cost of administering the act does not become exorbitant, and that the money paid by employees and employers is really returned to the workmen during periods of actual unemployment. Figures are available from Germany showing that during the period of extended unemployment the fund was exhausted because of the increased overhead and administrative costs. Figures are also available to prove that the same amount of money taken from the workmen would purchase more insurance in a private company and would be under the control of the individual workman, but because of the individual's failure to provide this protection, the federal government is seeking a means of making the saving compulsory.

#### PUBLIC HEALTH MEASURES

Public health measures, which are so important to the welfare of our citizens, are included in the Social Security Act. Provisions for carrying out these enactments are now being considered as to what methods shall be employed in protecting the people, through the prevention of disease, in the counties and townships throughout the state. To accomplish the objectives of preventive medicine, and to reach the greatest number of people, will necessitate changes in our public health laws. Under our present laws, it is impossible, except in times of military occupation, or the chaos following floods, storms or fire, to compel the people to submit to measures which have proved 100 per cent effective in the prevention of disease. The irony of the situation lies in the fact that when an individual becomes a victim of a contagious disease, he is immediately subject to strict quarantine, and no one questions the justice of his confinement. However, as long as our laws do not compel submission to methods of preventive medicine, the duty of the federal government should be to educate the lay population to the value of these measures, while leaving to the individual physician the actual work of inoculation, vaccination and so on. The individual physician must also do his share in popularizing and emphasizing the importance of these preventive measures. The general phases of public health work must be recognized as a public responsibility, while it is of equal importance to emphasize that the individual, as a patient, is the personal responsibility of the private physician.

\*Since this was written, the federal government has designated the Board of Education as the state agency to administer this portion of the Act.



## MEDICAL RELIEF IN IOWA

Concerning the medical relief situation in Iowa, you are all familiar with the plan set up after weeks of consultation between the officers and members of certain committees of the Iowa State Medical Society, and the Iowa Emergency Relief Administration. The plan embraces an agreement between the local county medical society and the county emergency relief administration whereby the members of the medical society agree to take care of the medical needs of the unemployed in the community at a fee schedule approximating 50 per cent of the minimum fee ordinarily in force. The plan has not been universally successful, and I am giving you herewith some of the complaints that have been voiced against it, because this matter is not covered in any committee report.

First of all, the State Emergency Relief Administration endeavored to anticipate the needs of a community, basing their estimates on percentages only applicable to much larger groups, with the result that many of the bills presented by the physicians have been materially reduced in order to keep the medical relief cost within the anticipated budget. Another complaint has been that the bills for medical relief, and the budget, are figured on a monthly basis, and if the medical bills for one month are more than the allotted sum it becomes necessary to make a proportionate cut in the bills. On the other hand, during the months when only a small amount of medical work is done, it is not permissible to build up a surplus; any sum left in the budget is turned back to the state. In other words, it is impossible to accumulate a sum to be used to take care of medical relief when sickness is more prevalent and bills are uniformly higher. In some instances, there has been a lack of cooperation between the relief workers and the medical profession. This is partly due to a misunderstanding as to the type of medical service to be rendered under the plan. One thing should be understood and that is, that unnecessary medical and surgical work should not be considered because the plan is a strictly emergency measure. Some relief workers feel that rehabilitation can be carried out under this plan, and when this idea exists in the minds of the relief workers and the physicians, medical and surgical bills are out of proportion. If rehabilitation is to be undertaken, the system of furnishing funds is inadequate, and in the last analysis, the work will be done at the expense of the physicians.

Criticism has been directed at the plan because of the impossibility of carrying out continued medical treatment of specific infections, but this is unfair inasmuch as the failure to carry on this

work is not due to an arbitrary ruling of the State Emergency Relief Administration, but rather to lack of funds. The foregoing remarks apply to the system in operation at the present time with the state financing the medical relief, as well as to the system in effect while the federal government furnished the funds. The principal reason for my mentioning the criticisms directed against the statewide plan is that we may profit by these errors and avoid these pitfalls in the future. A decentralized plan in effect in many counties of the state, including an agreement between the county medical society and the board of supervisors, is apparently more satisfactory.

I feel certain that no system will succeed unless there is a definite understanding on the part of the relief workers and the members of the medical society that the plan is to take care of an emergency situation and that the work must be cut to the minimum with rehabilitation being undertaken in no instance. If medical relief for the unemployed is continued, by either the state or federal governments, sufficient funds should be provided to carry on the work; and if the money is not available, the work should not be done at the expense of the medical profession. Under any plan, the responsibility for adequate medical attention should be placed on the state and federal governments, and they should assume that responsibility.

## GROUP HOSPITALIZATION

Another problem confronting the medical profession today is the so-called group hospitalization, or organization looking to the prepayment of hospital fees. The practice has been spreading during the last few years as an effort on the part of the hospitals to collect from persons in the low income group; the effort has been a necessity because during the period of depression there have been so many persons unable to pay their hospital bills; and during the same period, the income from endowment funds and public contributions has been materially decreased. This whole plan is an effort at self preservation on the part of the hospitals and exists on an almost national scale at this time, with the American Hospital Association and various state hospital associations actively promoting it. Some communities in Iowa have tried this plan with apparent success and mutual satisfaction. It is not our prerogative to question the financial or economic soundness of such a scheme, because it already exists and we do not care to enter the field of hospital administration. We must concern ourselves with the problem of excluding medical service from the hospital accommodations sold to the interested groups. We must be sure that medical care is not included either in

the initial plans, or in later proposals brought forth by sales efforts on the part of the different organizations in securing members. At the present time, various hospitals are invading the field of the practice of medicine, usually against, but sometimes with the consent and approbation of members of our profession. This is a good time to make sure that the doctor of medicine does not become the servant of the hospital. Our established ethics are adequate to take care of the situation, and the cooperation of the Council on Medical Education and Hospitals will be invaluable. The task is not an impossible one, but it will require local and national professional interest behind it. A definite stand should be taken against individual physicians, who, on personal grounds, do not object to the subjugation of the profession and the growing domination of hospital organizations.

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There are members of the profession who agree with the sociologists that a change in the care of the sick is desirable; and that this is the beginning of a universal social readjustment including medicine. If this be so, what can we do to adjust ourselves to the changes; or to prevent changes that we know will not be to the best interest of the profession or the people as a whole? Can we, ourselves, adopt changes that will meet the medical needs of the people and bring scientific medical service to all, regardless of their ability to pay?

This seems to be the issue in the minds of those advocating some change; it is also the thought back of the statement that a large percentage of the people are not receiving proper medical care at this time. The fact that charges for medical services have always been based on the patient's ability to pay seems to have been ignored. I know of no locality in Iowa, where any person is denied medical or hospital care because of his inability to pay for such service. Sufficient laws are in existence to provide funds for the care of the indigent and the unemployed. The physicians themselves tend many of these unfortunate persons as a part of their contribution to charity. The sociologists have interested themselves in the low income group and are now seeking means to bring this group under some plan whereby they will receive medical and hospital service at lessened cost. Certainly the medical profession does not want this low income group to come within the province of a federal or state plan, controlled by a centralized bureaucratic lay organization that would decide what service should be ren-

dered, and what the cost of that service to the individual should be. The greatest force and argument against such lay control would be the establishment, within the profession, of plans for caring for the low income group by the organization in each county of a system through which this class of persons may be given medical service at a prearranged cost, with extension of payments. This entire set-up should be outlined by trained social service workers, with the charges based on the patient's ability to pay. Every physician in the county should participate in such a plan in order to assure its success. Several counties in the state have a system of this type in operation at the present time, and it works satisfactorily. The patient retains the physician of his choice; the physician retains his patient; and most important, the patient is not placed in the position of receiving relief, but retains his pride in his ability to pay his way.

As a result of the changes now being tried, is it possible to assure social and economic security to all the people? Are they not being influenced to assume that economic security means financial security? In my opinion, a definite distinction should be drawn between the two—financial security can be attained only through the application of the theories of economy; while social or economic security in a broad sense embraces an opportunity for self management, careful administration and prevention of waste. It also affords individual independence, the promotion of self-security through prudent spending and judicious thriftiness, without interference by the government.

With the exception of properly administered old age pensions, care of dependent children, and public health measures, social security, in any form of health insurance, sickness insurance, or unemployment insurance, is conducive to the loss of the individual physician's initiative. It also tends toward the establishment of a central and bureaucratic control of medical affairs; and to the regimentation of the medical profession. As a profession, we are not dealing with the unknown as regards the cause and treatment of disease, when we adhere to the scientific facts and principles of ethical practice, established after years of research and application. However, faced with such radical changes as are now being promulgated, we are apprehensive and fearful of the system under which we are to render service. Only through organized medicine and a united front can we hope to have an active part in the final solution of the question of medical practice in the face of changing conditions.



## THE CHANGING TIMES\*

PRINCE E. SAWYER, M.D., Sioux City

It gives me great pleasure to have the opportunity of saying a few words, at this which may go down in history as one of the memorable meetings of the Iowa State Medical Society, and I say memorable because the times are rapidly changing, and whether or not these changing times are the forerunners of any marked change in the practice of medicine, only time will tell. Medicine and civilization have advanced from the dark ages, hand in hand. We have had many eras of a high type of civilization and during these periods the sick and injured were cared for along more rational lines, and scientific medicine advanced to new heights. Probably the two most distinct, outstanding eras of civilization, together with the advancement of medicine were, first—the Roman period embracing several centuries from about 400 B. C., down to the fall of the Empire in about 100 A. D., and second, the present period which really started some time in the sixteenth century.

The treatment of man in the period when he roamed the fields like a wild beast could be described as a more or less crude form of psychotherapy. In other words, the medicine man tried to drive out diseases by resorting to many mysterious and magical methods which worked very well as long as the patient had confidence in the medicine man. This was back in the Egyptian period about 4,000 B. C., when medicine was a mixture of what you might call superstition and religion, but even in that early period, the medicine man had developed some potions from herbs which he had collected, that had some virtue. They even splinted broken limbs and according to inscriptions which have come down through the ages, performed some crude surgical operations.

Civilization gradually began to show a little light on the horizon and as this light in the east became more pronounced, the treatment of the ills of the human family became more definite along the lines of science and medicine, although it was still not entirely out of the realm of mystery. We then come to the time of Aesculapius, the deified Grecian hero of medicine. This was the beginning of the Greek civilization, which as the centuries rolled by, grew and developed to the highest type, and with the development of this civilization, medicine began to expand along scientific lines, and the care of the sick became a rational procedure.

About 400 B. C. Hippocrates was born, and with his coming the responsibility for the treat-

ment and cure of disease was removed from the realm of mystery and the goodness of the gods, and placed upon the shoulders of the doctor. His method of diagnosis was founded more upon clinical observations at the bedside than upon anatomic knowledge. His description of disease was based upon keen and careful bedside observation. Having recorded the symptoms of his patient, he was able to define and classify disease. As long as scientific medicine survives, the teachings of Hippocrates will remain as models of the treatment of ills to which the human flesh is heir. Hippocrates made this statement: "Only the highest type of men have the intelligence, the independence, the integrity, and the courage to admit their errors, and seek without bias after the truth. It is such as they who have given us scientific medicine."

During this time the Roman Empire had been developing very rapidly, and gradually the civilization of Greece, together with the teachings of Hippocrates were taken over by the rulers of Rome. As the Roman Empire grew and developed the high state of civilization which was in evidence at that time, so also medicine advanced under the great Galen. The treatment of the sick and injured was advanced along rational lines, and due to his investigations, medicine occupied probably the highest plane it had reached up to that time.

Galen lived about 500 years after Hippocrates, and during that period Rome had developed a very advanced state of civilization, especially along the lines of sanitation. The sanitary conditions in the Roman Empire were most excellent; the streets of Rome were paved; sewers and aqueducts were built through the different cities in the nation; sewage disposal and pure water had their first practical application at this time. Gradually the Roman Empire ceased to grow and develop. Dissension and high taxes appeared on the scene, and in another century the Empire had gone into decay—the times were changing. The ruins of a great civilization were in evidence on every hand, and along with this decay and fall of a great civilization, also went scientific medicine, giving us the first illustration that with the rise and advancement of civilization, scientific medicine was born, grew, and developed, but with the fall of that same civilization scientific medicine went down with it, and nothing but quackery, mystery, and magic were left.

During the centuries following the fall of this great empire, sporadic attempts along the lines of science and medicine were made, but civilization was slow in regaining its ascendancy over the human beings who peopled this earth. Likewise medicine also was slow in regaining the place it

\* President Elect's address. Presented before the Eighty-fifth Annual Session, Iowa State Medical Society, Des Moines, April 29 and 30, and May 1, 1936.

had held in the past. It was not until the sixteenth century that light again appeared in the east and once more the times began to change for the better and civilization started its long climb up the mountainside. It did not gain much impetus until the beginning of the nineteenth century and then suddenly like a rocket, it started up the incline. The development of industry, science, and medicine was so rapid it was almost impossible to follow. Our first railroad train was operated in 1803; the first steamboat was operated on the Hudson River in 1806; the first airplane was flown in 1896; and electricity was developed in 1879; all spelled the future of a great culture and civilization, and hand in hand with this rapid advancement of industry and culture, went scientific medicine. Ether was developed by Morton of Boston in 1846; chloroform in 1847 by Simpson of Edinburgh; and Wells of Hartford used nitrous oxide in 1844. Some years later Joseph Lister conducted his great work along the lines of antiseptics and our modern surgery dates from that period. The discovery of antiseptics made it possible for the surgeon to enter the abdominal cavity, do his work, and get out without the danger of a resulting infection. This was an age of wonderful discoveries. Equaling and perhaps surpassing the development along the line of antiseptics by Joseph Lister, were the teachings of Louis Pasteur and Koch which were handed down about this time. Thus the nineteenth century ended in a blaze of glory and it was up to the twentieth century to take advantage of this advanced state of culture, industry, civilization, and scientific medicine, and develop it further along the lines which would be most beneficial to the people among whom we live.

In 1903 at the Fifty-second Annual Session of this society in Sioux City, a new constitution and by-laws, framed along the ideas of the American Medical Association, were presented to the convention, and after some discussion, adopted unanimously. This was the beginning of organized medicine in this state. At that time the membership of the Society was about eight hundred and this from a possible membership of over four thousand physicians who were practicing in the state. In other words about 20 per cent of the medical practitioners in the state were members of the State Society. The membership of the American Medical Association at this time, I think, was about 10,000.

Again after such an auspicious beginning of the twentieth century, times began to change rapidly and this time it was due to an Austrian count who stopped a Servian bullet. The result of this escapade was the beginning of the greatest war in all history, a war in which practically all nations became involved in one way or another. Here as

in all scourges and pestilences, which have overtaken this country, the doctor was one of the first to offer his service to his country, and he did it in no meager manner. Approximately 36,000 doctors abandoned the peaceful practice of medicine in their different localities and gave themselves to the services of their country for the period of the war. One-fourth of all the doctors in the United States were in uniform and the rest were anxious to go, but were persuaded by the government, national and state, that they must stay at home and administer to the sick and injured whose job it was to provide food and clothing for those who went away. The war ended; the men came back. Times changed so very rapidly that those who lived during the past two decades have lived a dozen decades of ordinary peaceful times. Then, this great depression struck us; it was another war, but this war was at home and every doctor was in uniform.

With these rapidly changing times we come down to the present and the question in everyone's mind is—"What is going to happen next?" Organized medicine during this depression has never refused to take care of anyone who was sick or injured, whether he was well-to-do, or belonged to the poor and underprivileged class. When he asked for medical attention he was always given it without any question, and he always will be. The true disciple of Aesculapius is never happier or more in his element than when he is alleviating the suffering and the pain of some poor human being. It is the work for which he spent all the years of his younger life fitting himself, and like the minister or the priest, it is his life work, and nothing shall come between him and suffering mankind to interfere with this great work. Organized medicine was never stronger than it is today, and by strength I am not referring to any physical or political strength, but I am referring to its ability to care for the sick and injured in the most satisfactory manner ever known up to the present time.

Entering the realm of politics for just a moment, there has been some little talk along the line of socialized medicine. Times are changing and changing rapidly. Industry and culture are developing so rapidly that one does not know today what is going to happen tomorrow. Benjamin Franklin, at the signing of the Declaration of Independence, made the statement, "We must all hang together, or we will all hang separately." Abraham Lincoln in his debate with Stephen A. Douglas said, "United we stand, divided we fall." While I do not believe that we will ever have to show our strength as an organization in the protection of the needs of the people, nevertheless I do believe that we should cherish our county, state, and national societies as we never cherished them



before, so that if some group trying to advance its power for some selfish purpose would endeavor to plan a course of action which would be inimical to the well being of the people from the standpoint of their health, we would be in a position to go before the people and explain to them honestly what socialized medicine means to them. I am sure that they would serve notice on this group that, "Not one foot further in that direction shall you go," and that would be the end of that. So, while the times are changing and changing rapidly, I believe we can all be safe in saying they are changing for the better. Culture, civilization, and industry are only in their infancy today, but under the leadership and governing power of the young members of this society, and society in general, the growth and development of these elements which go to make up the foundation of good government will continue to grow and develop regardless of any clique or political party which has socialized tendencies. When we hear the political orator talking about this country being at the crossroads, or saying that a revolution is just around the corner, we can safely push him aside because there are no crossroads, and there will be no revolutions. There is just one broad avenue leading up the mountainside to a greater prosperity, a greater and more bountiful era of civilization, and in thinking of the men who have helped build this avenue leading to a more abundant life for all, I am reminded of a poem, author unknown, entitled "Bridge Builder."

"An old man, going a long highway,  
Came at the evening, cold and grey  
To a chasm vast and deep and wide.  
The old man crossed in the twilight dim,  
The sullen stream had no fear for him;  
But he turned when safe on the other side  
And built a bridge to span the tide.

"'Old Man,' said a fellow-pilgrim near,  
'You are wasting your strength with building here:  
Your journey will end with the ending day,  
You never again will pass this way:  
You've crossed this chasm deep and wide,  
Why build this bridge at eventide?'

"The builder lifted his old grey head—  
'Good friend, in the path I have come,' he said,  
There followeth after me today  
A Youth, whose feet must pass this way.  
This chasm, that has been naught to me,  
To that fair-haired youth may a pitfall be;  
He, too, must cross in the twilight dim—  
'Good friend, I am building this bridge for him.'"

And so we, who have crossed the crest of the mountain and are going down the western slope into the setting sun, let us so build this road leading to a better civilization, and a more abundant life that those of the younger generation, as they travel over that road will say—"those who went before us—they certainly builded well. Let us so emulate their example and build even better than they did for the generations which are to follow us."

#### THE USE OF BARBITAL PRODUCTS\*

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Synthetic organic chemistry is responsible for much of the advance in knowledge of the action of drugs and for many medicinal preparations which are of value in the practice of medicine. These preparations have replaced many of the herbs and other vegetable products that were formerly used. We shall continue, however, to depend upon the well established effects of the digitalis, belladonna, opium and cinchona groups as well as other alkaloids. It is in the field of analgesics, antipyretics, specific chemotherapeutic agents, local anesthetics and sedatives that the organic chemist has added most to our armamentarium. Graduate study in organic chemistry, clinical observations on the effect of some of the latter group, and the newer work on cerebral localization have combined to make me choose this subject for this evening. There is some justification I think for the attitude that it is worthwhile to know why one uses this drug for this condition and that drug for another, rather than taking the statements of advertisements or house organs or detail men that "X-onal" is better than "Y-onal."

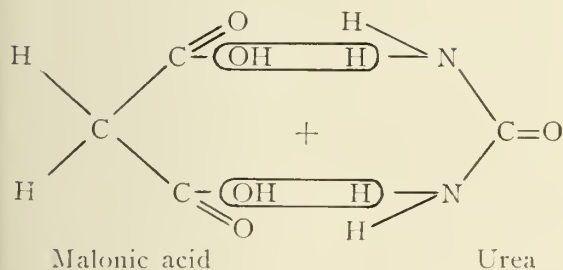
The members of the barbitol group are all of synthetic origin. Trade names have been applied to most of them as different manufacturers have sought to apply the results of the work of their research chemists to commercial production. These results are the outgrowth of the use of some well established principles of organic chemistry, the high degree of technical skill, the carefully controlled animal experiments, the transfer of these to clinical cases, and good collaboration among chemists, pharmacologists and clinicians. The competition is keen; the race for business advantage is strenuous; yet it must be said that although high pressure advertising methods are often used we have, thanks to the standards imposed by the Council on Pharmacy and Chemistry of the American Medical Association, acceptable

\*Read before the Lee County Medical Society, Keokuk, March 19, 1936.

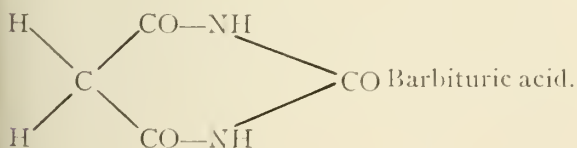
products available for our needs. The 1935 edition of New and Nonofficial Remedies of the American Medical Association lists fourteen products of the barbital group. These are in addition to the two in the latest United States Pharmacopeia.

According to Wagner<sup>1</sup> barbital and its derivatives can be divided into two groups. The division for the ones most commonly used includes in the shorter acting group, pentobarbital sodium, amytal and nostal; and in the longer acting group phenobarbital, neonal, ipral, allonal, dial and barbital. Barlow<sup>2</sup> has worked out the toxicity of some preparations. From high to low degree of toxicity is as follows: barbital, phenobarbital, amytal, neonal, allonal, dial and pentobarbital sodium.

The original product is barbital introduced as veronal in 1903. Emil Fischer the great German chemist and von Mering a clinician brought it out.<sup>3</sup> It is the parent substance or basic portion of the others, some of which are directly related to it while others are mixtures of barbital derivatives and other drugs. Since it is the basis of these other products a brief consideration of its chemistry will be given. It was known for a long time that urea products had a sedative effect. Urethane is an anesthetic much used in animal experiments. A combination of urea and an organic acid known as malonic acid made malonyl urea or barbituric acid. The structural formula for this combination is:

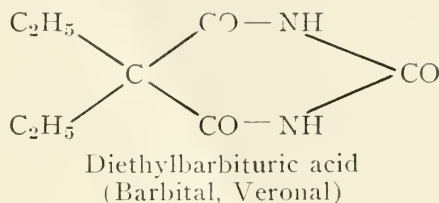


which when written leaving out the valence signs gives:



The urea part of this molecule contains the active  $\text{NH}_2$  or amine radical which contributes to the chemical activity. Ehrlich found that the ethyl radical  $\text{C}_2\text{H}_5$  had a hypnotic effect as in ethyl alcohol  $\text{C}_2\text{H}_5\text{OH}$ . Fischer figured that if he could combine ethyl radicals with a molecule containing a urea base, an adequate hypnotic result would be secured. That is what he did by the

chemical process of substitution and named it veronal.



The relationship between this early product and the later ones is shown in Table I<sup>4</sup> giving the structural formulas of the more widely used ones. The dosage varies according to the radicals substituted. In general it may be said that pharmacologically a substance containing higher members of the paraffin base series is more active than the lower ones, hence the smaller dose for these. Also the benzene ring gives greater activity, hence lower dosage for phenobarbital. Furthermore the substitution of a heavy metal in place of a hydrogen atom giving a metallic salt does several things. It increases the solubility, thereby increasing the rate and amount of absorption. This makes possible lower dosage, or with the same dosage greater effect without greatly increasing toxicity. The solubility also makes it possible to use the product by syringe as with luminal sodium or sodium amytal.

The pharmacologic action of barbital is a general lessening of activity of the cerebral cortex thereby inducing sleep. There is also some evidence that it acts on the thalamic centers as well. It is in spite of all the newer preparations still the best hypnotic in our experience. Grabfield<sup>5</sup> ran a series of tests on various hypnotics. He reports from the Peter Bent Brigham Hospital that barbital is the most efficient and cheapest of all the barbital series. It is safe in ordinary dosage. The margin between therapeutic and toxic dose is adequate. It is not often accompanied by dizziness when used in dosages of five to seven and one-half grains at bed time. Unsteadiness and a "hang-over" feeling is more likely to be found when barbital is used as a hypnotic in addition to a bromide or bromide and chloral combination given during the day as a sedative. It is particularly satisfactory in long standing agitated mental disorders. Some physicians, some relatives, some patients become apprehensive at times about habit formation. An answer to this is that in cases that have cleared up there has been no difficulty in cutting from seven and one-half grains to five, and then to two and one-half grains, adding sodium bicarbonate if necessary to make up bulk and then getting away from it altogether.

Phenobarbital introduced in Germany in 1912



## AS THE CHEMIST SEES BARBITAL COMPOUNDS

	ESSENTIAL GROUP	MODIFYING GROUPS	MELTING POINT
BARBITAL (U.S.D.)	$\begin{array}{c} \text{H}_2\text{N}-\text{C}=\text{O} \\   \\ \text{H}-\text{N}-\text{C}=\text{O} \end{array}$	$\begin{array}{c} \text{C}_2\text{H}_5 \\   \\ \text{C} \\   \\ \text{C}_2\text{H}_5 \end{array}$	187-190 C
PHENOBARBITAL (U.S.D.)	$\begin{array}{c} \text{H}_2\text{N}-\text{C}=\text{O} \\   \\ \text{H}-\text{N}-\text{C}=\text{O} \end{array}$	$\begin{array}{c} \text{C}_6\text{H}_5 \\   \\ \text{C} \\   \\ \text{C}_6\text{H}_5 \end{array}$	172-174 C
ALLYL-ISO-PROPYL BARBITURIC ACID	$\begin{array}{c} \text{H}_2\text{N}-\text{C}=\text{O} \\   \\ \text{H}-\text{N}-\text{C}=\text{O} \end{array}$	$\begin{array}{c} \text{C}_2\text{H}_5 \\   \\ \text{C} \\   \\ \text{CH}_2\text{CH}(\text{CH}_3)\text{CH}_2 \end{array}$	138-139.50
AMYTAL	$\begin{array}{c} \text{H}_2\text{N}-\text{C}=\text{O} \\   \\ \text{H}-\text{N}-\text{C}=\text{O} \end{array}$	$\begin{array}{c} \text{C}_2\text{H}_5 \\   \\ \text{C} \\   \\ \text{CH}_2\text{CH}_2\text{CH}(\text{CH}_3)_2 \end{array}$	153-155 C
DIAL	$\begin{array}{c} \text{H}_2\text{N}-\text{C}=\text{O} \\   \\ \text{H}-\text{N}-\text{C}=\text{O} \end{array}$	$\begin{array}{c} \text{C}_2\text{H}_5 \\   \\ \text{C} \\   \\ \text{CH}_2\text{CH}(\text{CH}_3)\text{CH}_2 \end{array}$	171-173 C
IPRAL (THE CALCIUM SALT)	$\begin{array}{c} \text{H}_2\text{N}-\text{C}=\text{O} \\   \\ \text{H}-\text{N}-\text{C}=\text{O} \end{array}$	$\begin{array}{c} \text{C}_6\text{H}_5 \\   \\ \text{C} \\   \\ \text{CH}(\text{CH}_3)_2 \end{array}$	200-203 C
NEONAL	$\begin{array}{c} \text{H}_2\text{N}-\text{C}=\text{O} \\   \\ \text{H}-\text{N}-\text{C}=\text{O} \end{array}$	$\begin{array}{c} \text{C}_2\text{H}_5 \\   \\ \text{C} \\   \\ \text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_3 \end{array}$	124-127 C
NOSTAL	$\begin{array}{c} \text{H}_2\text{N}-\text{C}=\text{O} \\   \\ \text{H}-\text{N}-\text{C}=\text{O} \end{array}$	$\begin{array}{c} \text{C}_2\text{H}_5 \\   \\ \text{C} \\   \\ \text{CH}(\text{CH}_3)_2 \end{array}$	177-179 C
DENTOBARBITAL	$\begin{array}{c} \text{H}_2\text{N}-\text{C}=\text{O} \\   \\ \text{H}-\text{N}-\text{C}=\text{O} \end{array}$	$\begin{array}{c} \text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_3 \\   \\ \text{C} \\   \\ \text{C}_6\text{H}_5 \end{array}$	126-131 C
DERNOSTON	$\begin{array}{c} \text{H}_2\text{N}-\text{C}=\text{O} \\   \\ \text{H}-\text{N}-\text{C}=\text{O} \end{array}$	$\begin{array}{c} \text{CH}(\text{CH}_3)\text{CH}_2\text{CH}_2\text{CH}_3 \\   \\ \text{C} \\   \\ \text{CH}(\text{CH}_3)\text{CH}_2\text{CH}_2\text{CH}_3 \end{array}$	130-132 C
PHANODORN	$\begin{array}{c} \text{H}_2\text{N}-\text{C}=\text{O} \\   \\ \text{H}-\text{N}-\text{C}=\text{O} \end{array}$	$\begin{array}{c} \text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_3 \\   \\ \text{C} \\   \\ \text{C}_6\text{H}_5 \end{array}$	171-174 C
PROPNAL	$\begin{array}{c} \text{H}_2\text{N}-\text{C}=\text{O} \\   \\ \text{H}-\text{N}-\text{C}=\text{O} \end{array}$	$\begin{array}{c} \text{C}_2\text{H}_5 \\   \\ \text{C} \\   \\ \text{CH}(\text{CH}_3)_2 \end{array}$	145 C
RUTONAL	$\begin{array}{c} \text{H}_2\text{N}-\text{C}=\text{O} \\   \\ \text{H}-\text{N}-\text{C}=\text{O} \end{array}$	$\begin{array}{c} \text{C}_6\text{H}_5 \\   \\ \text{C} \\   \\ \text{CH}(\text{CH}_3)_2 \end{array}$	226-228 C
SANDOPTAL	$\begin{array}{c} \text{H}_2\text{N}-\text{C}=\text{O} \\   \\ \text{H}-\text{N}-\text{C}=\text{O} \end{array}$	$\begin{array}{c} \text{CH}_2\text{CH}(\text{CH}_3)_2 \\   \\ \text{C} \\   \\ \text{CH}_2\text{CH}(\text{CH}_3)_2 \end{array}$	138-139 C

under the trade name luminal early found favor as a hypnotic. We owe to the late Dr. Julius Grinker<sup>6</sup> of Chicago the first published observations in this country of its value in epilepsy. It is now the standard drug treatment for this condition. Roy Grinker<sup>7</sup> in 1929 and again in his textbook in 1934<sup>8</sup> laid down certain principles which when followed may bring success in controlling convulsive attacks which hitherto have not responded to treatment. These are individualization of the patient as "each patient is an individual therapeutic problem and must be treated in order that the proper dosage should be given at the proper time." The dosage must be enough to cover the convulsive threshold. It will vary at different times particularly in the premenstrual, menstrual and postmenstrual seizures of women. While it cannot be definitely stated that phenobarbital acts more on one part of the brain than another its ability to control convulsive seizures suggests that it has some greater effect on the cells of excitation of motor impulses. The cells of primary excitation are in the motor area just anterior to the Rolandic fissure and lie in the precentral gyrus. When convulsions are nocturnal the drug should be given on retiring. When diurnal, administration should precede the expected time of attack by three or four hours. The attacks of essential epilepsy are better controlled than those having an organic basis. It is interest-

ing to note that epileptic patients can tolerate larger doses than persons to whom phenobarbital is given for some other condition. In the Asile de Saint Anne in Paris I saw epileptic patients up and around while taking three to five grains of galenal (the French preparation) three times daily. In another ward where the physician used it for controlling alcoholic excitement three grains three times daily kept the patients soundly asleep.

Phenobarbital is reported to have more effect on the blood pressure than other members of this series. Consequently it has been recommended in cases of hypertension. It has been our experience that it is of more value in so-called essential hypertension wherein the emotional element is a factor in keeping the blood pressure elevated than in malignant hypertension or in chronic nephritis with hypertension. Its use in combination with one of the xanthine bases like theobromine is associated with the former condition. Lessened nervous tension by reason of the sedative effect is perhaps the source of its usefulness in angiospasm and coronary spasm. Dizziness may often follow its use in the organic cases. As it is one of the drugs with more prolonged action it does, however, have value in small dosage over a continued period in this type. When used in combination with iodides in such situations good results are secured.

As will be seen from the chemical formulas

shown there are several other preparations that are rather closely related. Amytal, neonal, nostal, ipral, alurate, and proponal are the most widely known and publicized of these. Allonal is a loose combination of alurate and amidopyrine. Another such combination made by a different firm is amytal compound. Most of the drug houses now manufacture such preparations in which the analgesic effect of amidopyrine is used to lessen pain while the sedative effect of one of the barbiturates helps produce rest. Dial was found to have in addition to its hypnotic effect the ability to control chorea and other spasmodic states.

As indicated previously the use of one of the heavy metal salts of these weak organic acids increases solubility, enhances rapidity of absorption and makes solutions available for introduction under the skin or into a vein. Sodium is the base most frequently used, though a calcium salt makes ipral. Barbital sodium and luminal sodium are the soluble salts of the two earlier preparations. Clinical experience in general has not shown these to have any greater applicability than the parent preparations. Ortol sodium is another product that falls in this group.

The case is somewhat different in the case of sodium amytal and pentobarbital sodium, as both of these have had rather wide application in fields other than essentially neuropsychiatric. However, it must be remembered that their action is on the central nervous system no matter whether they are used for preoperative preparation or in obstetrics or in the treatment of poisoning. My experience has been largely with sodium amytal in neuropsychiatric conditions. Opportunity has been presented, however, through the kindness of colleagues to observe its effect and that of nembutal in surgery and obstetrics. Sodium amytal was introduced for general anesthesia by Zerkas, McCallum and their associates in 1928.<sup>9</sup> They also observed its effect in controlling convulsions. Robbins<sup>10</sup> reported in 1929 its value in controlling eclamptic convulsions. Probably its most striking effect is in the treatment of strychnine poisoning. Stalberg and Davidson<sup>11</sup> state "The chapter on the treatment of strychnine poisoning must be entirely rewritten." Haggard and Greenberg<sup>12</sup> found experimentally that sodium amytal or phenobarbital sodium and strychnine are mutually antagonistic; in other words that each might be considered an antidote for the other.

The early preparations of sodium amytal were made for intravenous use. Then the capsules appeared. At first the three grain capsules were the only size; now they are also available in one grain doses. I have found the small dosage to be very useful in excitomotor phenomena of which I shall speak later. For preoperative preparation three

to nine grains are given. Surgeons have developed their own technic for administration. Three to six grains will work adequately, as a hypnotic. We had one patient in the sanatorium who had taken twelve three grain capsules, thirty-six grains in all, and slept thirty-six hours, an hour for a grain. Treatment given was gastric lavage, caffeine and strychnine. He recovered from this and eventually recovered from the involution melancholia which prompted such an attempt. He presented the classical effects described by Lundy as to the hypnotic and sedative effect being on the thalamic centers. Other work suggests an effect on the hypothalamic region. Sodium amytal, nembutal, dial and other members of the group have been used extensively for prolonged narcosis in the treatment of psychotic cases. They make the patient more accessible and quiet agitated cases. Many patients speak of a feeling of lowered tension when partially under the influence of these drugs.

Physiology of movement and the maintenance of postural reflexes have been subjects of considerable interest to me for some time. I said a few years ago in a previous paper<sup>13</sup> "Excitomotor phenomena are significant in the study of the physiology of the nervous system. Complicated movements are normally performed often without conscious effort. Muscle tonus, reflex activity, coordination of impulses from within and without through the lower centers of the brain, stimulated or inhibited to the proper degree by higher areas, take care of this. When, as a result of disease, something happens to the lower or the higher centers many things may occur. There may be abrupt and violent discharge of energy accompanied by loss of consciousness, i. e., convulsions. There may be loss of volitional control, i. e., paralysis. There may be a wish to perform the movement but misdirected effort, i. e., athetoid movements. There may be an impelling need, an overstimulation from above and absence of coordination, i. e., choreiform motions. Impulses may arise calling forth regular slow or rapid muscular contractions often rhythmic in character and which the individual knows he is performing, yet is incapable of controlling, i. e., myoclonic movements."

The occasion for that particular paper was the study of a case of encephalitis in which sodium amytal was used to control severe choreiform and myoclonic movements. It was felt at the time that there was something more in the action of sodium amytal in that and similar situations than the sleep producing effect. It was my conclusion from clinical observation that in hyperkinetic situations sodium amytal appears to act on those areas of the brain having to do with excitomotor phenomena. This product has been used in other



cases since that paper was written and has been employed in myoclinic states and choreas with quite satisfactory results.

The problem of cerebral localization has been studied for years dating back to the time when phrenology was taken seriously. The progress was at first by anatomic and pathologic methods in which gross changes were observed. Then more exact histologic technic led to further study. Physiologic methods using stimulation by electric means brought more knowledge. The work of neurosurgeons such as Cushing, Sir Victor Horsley and others, made the brain accessible to surgery. Study of the brains of higher apes by a combination of surgical, physiologic and pharmacologic technic gave further information. Foerster mapped out the areas of the brain and gave us the numerical classification for localization which is being more and more generally used. Fulton and his associates in this country have carried out experimental investigations which have opened up new ideas. They have shown that there is an area in front of the main motor area which is extremely important in relation to associated movements. It is part of the extrapyramidal system as differentiated from the pyramidal system which has its origin in the motor area. It is called the premotor area.

Fulton, Liddell and Rioch<sup>14</sup> found that dial and sodium amytal impaired the excitability of this premotor area to a much greater extent than that of the motor area. Fulton in his recent Ludwig Hektoen Lecture states further,<sup>15</sup> "As the extrapyramidal systems of area 6 (the premotor area) were thus depressed it is reasonable to suppose that those from area 4 (the motor area) were similarly impaired, since they also depend upon subcortical connections which are specifically affected by drugs such as sodium amytal and dial (Ciba)." These statements give an anatomic basis for the clinical observations reported on the effect of sodium amytal in controlling some types of excitomotor phenomena.

Swanson and Shonle<sup>16</sup> developed the product sodium-iso-amytal which has the same molecular weight as sodium amytal but has a rearrangement of the amyl radical. They found that it is about twice as powerful but also twice as toxic as sodium amytal. Under the names nembutal and pentobarbital sodium it has been widely used in surgery and obstetrics. Irving<sup>17</sup> and his associates at the Boston Lying In Hospital have developed a very satisfactory technic for its use during labor. They give an initial dose of four and one-half to six grains, depending upon the weight of the patient. This is repeated three to four hours later in two to three grain doses if indicated. Forty-five min-

utes after the initial dose one one-hundredth or one one-hundredth and fiftieth grain of scopolamine was given subcutaneously and was repeated later as soon as the patient began to complain of pain. Eighty-six per cent of their patients remembered nothing of their labor and fourteen per cent recalled only isolated incidents. Sixty-three per cent of the children breathed immediately at birth. Seventeen per cent of the mothers were sufficiently restless to require restraint. They set down these rules for use of any of these preparations. "No patient in labor who is given any hypnotic drug should ever be left, even momentarily, without constant, competent nursing supervision. No such medication should be administered when labor is conducted in the patient's home. It is an affair for a hospital alone, and all relatives and friends must be excluded from the room. No patient, at completion of labor, should be left alone until she is thoroughly awake and able to answer questions intelligently."

I have had very little experience with nembutal. Occasionally a patient enters the sanatorium who had had it prescribed by his physician. We usually continue its use for a day or two by which time enough knowledge has been gained of the condition to decide what drug of the ones in use is most suitable. Then the shift is made.

The matter of addiction to barbitol or its related substances has been purposely omitted from this discussion. It presents problems of its own. The personality of the individual who resorts to any drug whether alcohol, opium, chloral, barbitol products or other things is the leading factor. Another one of importance is that of keeping the administration of any medication under the physician's control. Purchase over the counter of barbitol products or other substances is permitted in many states. The doctor is the only one who knows the indications and the dangers of these drugs.

I have not attempted to set up in this paper any rigid specifications. All of us find that certain preparations work better in our hands as we gain in knowledge and experience. I have tried to outline some of the chemical principles and some of the clinical effects and to suggest some of the neurologic mechanisms involved in the use of barbitol products. They are active preparations; consequently the more we know of their properties the better able we shall be to use them for the best interests of our patients.

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### FEEDING CASES\*

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Formerly the term "feeding cases" was used extensively and was applied to any infant having nutritional difficulty, the cause of which was not obvious. The difficulties were usually attributed to the type of food and consequently dietary changes were frequent in an endeavor to find some food combination which agreed. Infant feeding was on an empirical basis to a far greater extent than at present. It is customary at present to consider these feeding cases on a different basis. When a baby is encountered who has nutritional or gastro-intestinal difficulties while receiving a normal formula suitable for the average infant, the food is not necessarily changed. The cause of the difficulty is more likely to be found in the infant than in the food.

Certain of the formulas which have been recommended are not entirely suitable for the young infant. Some of these formulas lead definitely to overfeeding with its attendant gastro-intestinal symptoms. One such recommended formula consists of equal volumes of evaporated milk and water with six per cent or more of added sugar. Evaporated milk has had more than half of its water removed and a one to one dilution results in a product of greater concentration than the

original milk. While infants over three months of age may be expected to have no difficulty with this concentrated feeding, those of less than this age usually do. For the young infant evaporated milk should be diluted at least to its original volume and preferably a little more. Dilution to the original volume means a dilution of 1:1.2 instead of 1:1. The usual tall can of evaporated milk contains thirteen fluid ounces (fourteen and one-half ounces avoirdupois). This is equivalent to nearly twenty-nine fluid ounces of whole milk.

It is generally accepted that the young infant can readily digest undiluted acidified fresh milk with added sugar, but this seems to be true only when the milk is not rich and the sugar addition does not greatly exceed six per cent. A ten per cent sugar addition to undiluted acidified milk will usually cause diarrhea in the infant under two or three months of age when the customary volume of food is taken.

The examples which have been cited concern overfeeding. However, it is to be recognized that many more babies are underfed than are overfed. Underfeeding leads to a poor nutritional status even though gastro-intestinal disturbances may be absent. Sometimes underfeeding is induced by what would appear to be trivial causes. Many a mother does not have a correct idea of the proper size of the hole in a rubber nipple. Frequently it is found that the hole is very small, the milk is obtained with difficulty and the baby stops nursing before the food is taken and before he has had enough.

Underfeeding occasionally leads to vomiting and because of the vomiting the food is further reduced by the parent in an attempt at correction. Vomiting in association with underfeeding is most often caused by swallowed air. All babies swallow some air, but large quantities are more likely to be swallowed by the baby who is hungry or who obtains his food with difficulty. If in any instance vomiting is caused by underfeeding, it can usually be corrected by giving an appropriate amount of food and causing swallowed air to be expelled.

Both overfeeding and underfeeding are readily avoided when appropriate attention is given to the formula. The energy content of any formula is easily estimated. For the young infant fifty to fifty-five calories each twenty-four hours for each pound of body weight is necessary for good growth; for the older infant the requirement is forty-five to fifty calories for each pound. It is understood, of course, that these requirements are based on what the infant should weigh rather than the actual weight. A little more than the amounts stated is preferable to less than these amounts. Many of the milk dilution formulas frequently

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employed do not readily supply this amount of energy. So often the recommendation for the young infant is one and one-half ounces of milk a day for each pound of body weight. It is probable that the young infant will have his needs met more adequately by one and three-quarter ounces or even slightly more.

We now concern ourselves with infants who have difficulties when the formula is presumably of the proper quality and quantity. Babies with certain types of congenital malformations are peculiarly susceptible to nutritional disturbances. This applies particularly to those conditions in which there is interference with aeration of the blood. Babies with marked cardiac malformation may be expected to utilize food less efficiently and to have digestive disturbances more readily than those with good circulation. Similarly babies with congenital stridor often have the same type of difficulty if the obstruction is sufficient to limit pulmonary ventilation. Babies are encountered occasionally who have a receding lower jaw to the extent that when the infant is lying on the back the tongue falls back enough to obstruct respiration and to cause choking and vomiting when food is given. In all of these conditions poor nutrition is common. Some of them are amenable to appropriate management with consequent correction of the nutritional difficulties. However, some of the babies with congenital malformation of the heart may have more or less interference with growth despite good nutritional management.

Certain other relatively infrequent conditions affecting nutrition may be mentioned briefly. Allergy in infancy is not often a cause of nutritional disturbance, though in a few instances it may be the underlying factor in vomiting or diarrhea. Autonomic imbalance giving rise to gastro-enterospasm may require certain departures from the customary diet; the appropriate diet in these cases is one which gives a minimal stimulus to peristalsis, viz., one low in fat and relatively high in protein and with a sugar of low fermentative value.

Even in the first half year of life babies may show evidence of a functional neurosis which manifests itself in voluntary vomiting and in food refusal. In some of these babies the vomiting is classified under the term rumination. Certain of the infants seem to have had their vomiting originated by the forced feeding methods of an over-solicitous mother. The vomiting and food refusal of these infants are often sufficient to affect nutrition seriously. Correction is to be attained by the method of management rather than by changes in the food.

Babies with pyloric stenosis may sometimes be considered as feeding cases until the true diagnosis is made. It has become obvious that a better recognition of this condition exists now than obtained a few years ago. At the present time relatively few infants with pyloric stenosis are referred to the surgeon after having been weaned because the mother's milk did not agree. Most of them are still at the breast.

Infections in the alimentary tract were formerly frequent causes of vomiting and diarrhea and consequent malnutrition. Because of greater care of the milk supply and the almost universal practice of boiling milk for infant feeding, dysentery has almost disappeared. It is well recognized, of course, that infections with the typhoid group of organisms produce a relatively mild disease in infancy and that the symptoms usually consist chiefly of diarrhea with perhaps some vomiting and food refusal. It is important to identify these specific infections when they occur and to apply the appropriate methods of management. However, this group of diseases does not commonly contribute to the abnormal states which are considered under the designation of "feeding case."

From a statistical point of view the most important cause of nutritional disturbances and producer of "feeding cases" is infection elsewhere than in the gastro-intestinal tract. It has long been known that otitis media and upper respiratory infections produce gastro-intestinal symptoms and that the diarrhea and vomiting which result are only partially amenable to dietary management. Not so frequently recognized is the fact that chronic low grade infections in these same areas tend to produce subacute gastro-intestinal symptoms. The chronic infection may be overlooked or disregarded and all of the therapeutic attention given to the alimentary tract. Though certain modifications of the usual diet may have some degree of usefulness, they do not cause a correction of the difficulties. It is this group of patients more than any other which constitutes the majority of the infants commonly classified under the term of "feeding case."

It frequently happens that the infant with chronic upper respiratory infection and consequently gastro-intestinal symptoms is grossly underfed in the effort at control. At the present time this therapeutic underfeeding is probably the most frequent cause of extreme malnutrition in infants. Because of the vomiting, food refusal and moderate diarrhea, frequent changes may be made in the food and too often these changes are in the direction of lessened energy intake. If the

condition is recognized for what it actually is, appropriate food may be given in sufficient quantity to permit good gains in weight despite the persistence of gastro-intestinal symptoms.

A baby with chronic infection is likely to have poor gastric motility and tonicity; the gastric secretion tends to be diminished. Under these circumstances gastric stasis occurs and is a potent cause of vomiting. In a young infant the vomiting has been mistaken for that of pyloric stenosis and this latter diagnosis has been made to appear probable by the relative failure of a barium meal to pass on in a roentgenographic examination. The food lying in the stomach tends to undergo bacterial decomposition and if fat is present in significant quantities the odor of butyric acid in the vomitus is prominent. Because fats retard the emptying of the stomach and for other reasons discussed subsequently, it is good practice to reduce the amount of fat in the food to a minimum.

In infants with chronic upper respiratory infection the stools often are sufficiently acid to excoriate the buttocks, even though they may not be especially frequent. Usually dietary changes made in the endeavor to control the stool acidity are without effect.

With continuous or frequently recurring attacks of gastro-intestinal symptoms from chronic parenteral infection and the consequent decreases in the diet so often made, a state of marked malnutrition is a common result. Malnutrition increases the functional disability of the gastro-intestinal tract. The more marked the malnutrition, the less the ability to utilize fats and the more complex carbohydrates and the greater the probability that the presence of these materials will produce an increase in the symptoms already present. For these patients a larger rather than a smaller amount of food is indicated, but the food chosen should be of such a character that the symptoms are not unduly aggravated. This means that the diet should be low in fat and relatively high in protein. For this purpose boiled skimmed milk, with or without added lactic or citric acid, usually serves admirably. Since the complex sugars usually cannot be increased sufficiently to maintain an adequate energy intake without producing or increasing diarrhea, the use of monosaccharides is advocated. Dextrose or corn sugar can be given in almost unlimited amounts without the production or aggravation of diarrhea. Thus, skimmed milk with added dextrose sufficient to meet the energy requirement may be given, not only without harm, but to the great advantage of the infant. The nutritional requirements may be easily met in this

manner, providing no difficulty is encountered in making the infant ingest sufficient food. Many of these infants have a poor appetite or for some other reason they do not readily take all of the food required for the maintenance of nutrition. In a few of these cases gavage may be necessary for a short time until an upward trend is established.

In some instances a decreased volume of food is indicated. Decrease in volume with maintenance of food and energy content may be accomplished by adding moderate amounts of dried skimmed milk or powdered casein to the formula. If all of the dextrose required cannot be put into the formula advantageously, some of it may be given in solution as a drink between feedings.

For patients who are markedly malnourished when they come under care, much will be accomplished toward a quicker recovery by one or more transfusions and the parenteral administration of fluids. Babies with extreme malnutrition have a decreased blood volume and consequently an impaired circulation. The improvement in circulation induced by the administration of blood and fluids aids greatly in increasing the utilization of food.

Acidified milks have a most useful place in the management of gastro-intestinal disorders in early infancy. Appropriate acidification produces a casein curd which is readily digestible, thereby making unnecessary the modification of milk by dilution for the purpose of accomplishing this same end. In malnutrition and the protracted diarrheas of infancy a high protein diet is indicated. Such a diet is more readily administered if the milk is undiluted and is more readily utilized if the milk is acidified.

In the acidification of milk much more emphasis has been placed on the use of lactic acid than of other acids equally effective. It should be pointed out that citric acid is in many respects superior to lactic acid and that it deserves more widespread use. When lactic acid is added to milk, great care must be employed as regards the quantity used, the speed of addition, the constant agitation of the milk and the temperature at which the addition is made. Errors in these various factors are relatively easy to make. When citric acid is used, a greater latitude is permissible in all of these factors and errors of any consequence are relatively difficult. Citric acid is conveniently employed in a twenty-five per cent solution, of which two teaspoonfuls may be added to the quart of milk.



## CLASSIFICATION AND MANAGEMENT OF CHRONIC SUPPURATIVE OTITIS MEDIA\*

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In the discussion of chronic suppurative otitis media, a most important point, which often is neglected, and which often leads to considerable confusion when one attempts to review the literature, is the proper limitation and definition of the subject. In defining chronic otitis media, it is important to consider whether there is a distinct pathologic entity present or whether there may be several fundamentally different pathologic conditions which present similar symptoms, or symptoms which are difficult to distinguish.

In his "Essays on the Surgery of the Temporal Bone," Ballance<sup>†</sup> remarked: "Want of agreement among serious workers about a grave question of surgical treatment arises either from the lumping together of clinical conditions having an essentially different pathologic basis or from essential pathologic conditions not being clearly understood. All true and lasting surgical practice is based upon pathology, and when once the pathology of an affection is clearly appreciated divergence of view as to its treatment ought to disappear." Yet in his "Observations on Otitis Media Chronica," he<sup>1</sup> considered it sufficient to say: "The causes of non-tuberculous chronic otitis are those of the acute disease, and the most common cause of the persistence of the disease is extension to the bone." He quoted Milligan to the effect that the presence of staphylococci probably is the influencing factor.

Other writers, in discussing the pathologic conditions present, noted the tendency toward hyperplasia in the mucous membrane of the tympanum, with occasional ulcerated regions and the formation of granulation tissue, which occasionally became hypertrophic and resulted in the formation of polyps. In occasional areas the presence of a squamous type of epithelium is noted. In cases in which the disease has been present for a long time, this often will line the entire tympanic cavity, especially in those cases in which there is wide destruction of the tympanic membrane. The submucosa shows marked round cell infiltration, and occasionally the periosteal layer is identified with difficulty. Similar changes take place in the attic, aditus, and antrum. In the mastoid cells, hyperostitis and osteosclerosis were supposed to result from ossification of granulation tissue which filled

the mastoid cells in an incompletely resolved acute process.

Later, the presence of cholesteatoma received great attention. Some thought that a chronic running ear was the result of retraction of Shrapnell's membrane, which produced an encysted cholesteatoma. Lange, for example, believed that the conception of epidermis growing into the spaces of the middle ear through a perforation could not be maintained; that the retraction of the membrana flaccida produced the encysted cholesteatoma; that it could form in any type of bone, and that the sclerotic changes in the bone could be secondary to irritating properties of the cholesteatoma. Mayer rejected the retraction theory, and also the theory that there could be an ingrowth of epithelium as the result of active proliferation. He favored the theory that an ingrowth of epidermis follows the subsidence of an acute purulent otitis media, with a perforation of Shrapnell's membrane as a result of the inflammation.

Wittmaack wrote, "The Normal and the Pathological Pneumatization of the Temporal Bone," in 1918, but not until the past few years has it received wide consideration. His theory is briefly this: In embryologic development, the spaces of the middle ear are filled with an embryonal mucous tissue which is later replaced by epithelium that grows from the nasopharynx and extends through the eustachian tube. Normally, the cellular systems of the mastoid process then develop in the same manner from the cavities of the middle ear, the attic, the recess, and the antrum, and a pneumatic type of mastoid process results. During delivery, irritating materials which have an inhibiting effect on the embryonal mucous tissue and ingrowing epithelium, may reach the spaces of the middle ear. The transformation of the character of the mucous tissue is divided into two types, the hyperplastic and the fibrous. The disturbance of the embryonal mucous tissue results in partial or complete suppression of the pneumatization of the mastoid process depending on the amount of injury to the embryonal tissue. Chronic suppuration of the middle ear depends on complete suppression of pneumatic development and hyperplastic character of the submucous tissue.

The types which develop are: first, chronic suppuration of the mucous membrane, the result of acute exacerbations of a latent type of hyperplastic otitis which has been present since birth; and second, chronic suppuration with cholesteatoma. In the latter type the condition may follow acute necrosing otitis, with ingrowth of epithelium through a defect in the tympanic membrane. It may be the result of retraction of Shrapnell's membrane by adhesion, or it may result from a

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combination of these causes. Wittmaack believed that acute suppuration of the middle ear depends on the lesser grades of developmental interference, and that the more circumscribed the pneumatization is, the more subepithelial hyperplastic tissue will be present and the higher the type of the epithelium will be. The more marked these changes are the more prolonged the suppuration will be and the closer it will come to chronicity. He also expressed the opinion that the endocranial complications of otitis infection (pyemia, meningitis, or abscess of the brain), whether they are acute, chronic, or the result of an exacerbation, depend on the persistence of vascular tracts, which he divides into three principal groups. One group passes to the tegmen; one group passes to the posterior surface of the pyramid, and the other group passes to the floor of the tympanic cavity. "Pathologic pneumatization of marked degree gives rise to a definite anatomic disposition to infection along vascular tracts, which depends upon the persistence of broad vascular connections between the dura and hyperplastic submucous connective tissue." These are always the routes of infection, except in cases in which it obviously results from contiguity of tissue. That this theory is thoroughgoing and inclusive, no one can deny; that it is true, is probable; but that it is the whole truth, is open to question. Zealous advocates of a rigid adherence to this classification insist that acute suppuration in the sclerotic type of mastoid process is impossible, that sclerotic changes do not occur after the cellular systems of the temporal bone have developed, and that chronic otitis media cannot develop in a normally pneumatized bone.

The possibility that the influences which interfere with normal development of the mastoid process are inherited, as well as acquired by passage through the birth canal is suggested by Richter, in his paper on suppuration of the middle ear which appears among families. On the basis of ten family trees, he stressed the importance of constitutional factors in the development of chronic disease of the middle ear. That bony sclerosis which is the result of infection, can occur in normally pneumatized temporal bones seems equally probable. Marx believed pathologic bony changes similar to those which Wittmaack ascribed solely to the results of infantile otitis, can be brought on by otitis which occurs later in life. That it cannot be definitely proved at the present time is simply because few have supposed it would ever be denied. I have seen cases in which bones which apparently were well pneumatized, according to the roentgenogram at the start of a mastoiditis, revealed roentgenologic evidence of sclerosis subsequent to healing. Wright's remarks on the reaction of bone in the sinuses to infection might be

repeated here, for bone in the two situations surely must be similar in its reaction to infection. He said: "I have become accustomed to look upon this sort of inflammation as due to the substitution of the stimulus of irritation, whether from external surface agents, from bacterial agents of disease within the surface, or from systemic vasomotor disorders, for that mysterious physiological stimulus of growth which carries with it some agency which shapes the symmetry of form. In pathologic processes, that agent which shapes the symmetry of form is absent or works badly and we get unsymmetrical development in the hyperplastic irregular forms. New bone growth starts as a sequence of an ordinary hyperplasia of the mucous membrane." Chronic bone infection might conceivably develop without either congenitally hyperplastic submucous tissue or cholesteatoma being present, and give rise to chronic suppuration. Of interest in this connection is the study of Hadjopoulos on the type of infection produced by various strains of streptococci. In commenting on the type of mastoiditis produced by the facultative anaerobes of the type of the *Streptococcus fecalis*, he pointed out that these organisms are found in the region of the nose or throat, and that they act as pathogens in partly or totally closed chronically infected foci, such as roots of teeth, or in chronically infected sinuses. In the mastoid cells, the course of the infection produced by these organisms is usually protracted; the infection has a tendency to produce complications of a chronic nature; with the production of marked granulation tissue. It is conceivable that an organism of this type might produce a true chronic otitis media if the infection were allowed to run its course.

It would seem more correct to accept the theory of Wittmaack, while keeping in mind that other pathologic processes might produce similar results. His work is extremely valuable in unifying the clinical picture and pathologic findings in chronic suppurative otitis media. It does not seem to me, however, that Wittmaack's theory should be used as a basis for advising radical mastoidectomy in acute or subacute mastoiditis, on the grounds that it shows chronic running ear to be predestined. The studies of Döderlein are very enlightening in this connection. He found that in the presence of an acute inflammation of the middle ear, epithelial cells may find their way into the tympanic cavity and develop on the surfaces which have lost their epithelial covering as a result of the acute inflammatory reaction which is present. The squamous type of epithelium usually will not persist in such cases, because the epidermis is resorbed in the process of healing. It is only at the termination of an inflammatory process



that an ingrowth of epidermis will continue to spread and will not be absorbed. It must be an extreme rarity to find a radical operation necessary after an adequately performed complete mastoidectomy. Why epithelium grows into the middle ear in some cases and not in others is explained by Wittmaack by the conjunction of an acute necrotic type of otitis media with the presence of a hyperplastic type of submucous tissue in the middle ear, which supplies the factors favorable for the ingrowth of epidermis. It would seem possible, however, that any more or less complete destruction of the mucous membrane of the middle ear might offer a favorable soil for replacement by squamous epithelium, for it is known that skin grafts placed in an antrum lined with a similar type of mucous membrane will grow and produce a cholesteatoma. I wish to emphasize the separation of the chronic type of otitis media from the subacute type of long duration. I recognize the existence of acute reinfection in chronic otitis media, but this is definitely a different entity and immediately puts the condition in the class of complicated chronic otitis media. In this discussion, I will not consider chronic otitis media that is the result of malignancy, tuberculosis, or syphilis as representing factors which do not pertain to the chronic otitis media as ordinarily seen. I, therefore, define chronic otitis media as continued suppuration from the middle ear, which has as a basis chronic changes in the bone, or cholesteatoma, and which does not produce symptoms or pathologic findings that suggest an acute process.

The general symptoms of chronic uncomplicated otitis media are purulent discharge from the ear, more or less interference with hearing, and occasionally, some effect on the general health. The discharge from the ear may be extremely foul or may have little or no odor; it may vary in quantity from an amount sufficient to form only a slight crust over the attic or drum, to a quantity sufficient to require changing the pledget of cotton, with which the ear is usually plugged, several times a day. It may be largely mucoid in character; it may be largely purulent, or it may contain fragments of cholesteatoma or exfoliated bone. On examination, the source of pus usually may be readily identified as the middle ear; the pus passes through a perforation of varying size in the drum, or passes through a fistulous opening which enters the canal anterior to the drum and communicates with the attic. The perforation in the drum may or may not be in the margin. The size of the perforation in the drum has no relation to the amount of impairment of hearing, which depends on the amount of scarring about the foot plate of the stapes, or exceptionally on some injury to the cochlea. Many patients who have chronic suppur-

ation of the temporal bone suffer from anemia, lack of vigor, and other symptoms of toxic absorption.

Of chief interest to the otologist are not the general symptoms, but those signs and symptoms which will inform him whether the condition may be safely treated, and if surgical interference seems necessary, what the findings are that lead to this conclusion, and what are the most satisfactory methods of surgical attack. In 1893, Schwartze expressed the opinion that, as soon as a sufficient otoscopic examination makes it plain that the site of suppuration is not limited to the tympanum, radical operation is indicated as a prophylactic measure against fatal complications of incurable fetid suppuration of the middle ear, even without signs of inflammation of the mastoid cells and without indications of retention of pus. Later, a more conservative attitude became general and the indications and recommendations of Politzer are typical. The objective signs which Politzer considered an indication for operation were well marked caries in the walls of the tympanic cavity; extensive proliferation of polyps and granulations in the tympanic cavity which grow from the antrum and attic and recur, even after repeated removal; carious fistulas which are situated either in the posterior superior wall of the external auditory canal or on the outer surface of the mastoid process; cholesteatoma; hyperostosis of the external and auditory canal which cause narrowing or complete atresia of the meatus; facial paresis or paralysis; painful swelling or abscess over the mastoid process; and an obstinate long continued, septic, bad smelling discharge which has resisted all forms of treatment. If symptoms of commencing tuberculosis appear in cases of chronic suppuration, the operation not only has a favorable influence on the local affection but also on the general health of the patient. The subjective symptoms which Politzer considered an indication for operation are persistent or frequently recurring pains in the ear and in the mastoid region; headache, either constant or recurring at short intervals; persistent and fixed pain in the parietal or occipital regions, which is increased by percussion; intermittent or permanent vertigo; and well marked cerebral symptoms such as headache, sensation of heaviness and pressure in the head, drowsiness, torpor, loss of consciousness, and so forth. He further said that he did not agree with those surgeons who performed a radical mastoid operation not only when the above indications were present, but also often for the mere purpose of curing the discharge; at least until strenuous efforts had been made to stop it by other means.

The less hesitant position has been stated very

well by Ballance,<sup>2</sup> who said: "It is evident that there is still undue hesitation in advocating operation before the onset of threatening symptoms. The disease itself is the indication for operation, not the threatening symptoms of wider and deeper disease. The most truly 'conservative' treatment is that which most surely and speedily cures the disease. When there is no bone disease, operation may not be necessary and it may well be that many such cases come under the notice of those in special practice, but when bone disease is present and can be readily exposed and removed, it is a retrograde step to employ any other method of treatment. Many so-called indications for the performance of the mastoid operation in cases of chronic otorrhea clearly point to the imminence or to the actual existence of one or other of the complications which the operation is designed to avert, and, as in appendicitis an abscess tells the tale of an opportunity lost and of danger incurred, so such a complication likewise tells the tale of lost opportunity and of needless danger. What is the meaning of this wave of opinion against one of the most successful of modern operations? Why hesitate to carry out on the temporal bone what every surgeon would without further thought do on the tibia or on a rib? Why return to the ancient practice which prevailed before the principles of surgery were applied to the treatment of aural disease?"

"When brain symptoms, so-called, arise, no one doubts the desirability of removing the source of infection, but when this indicatio vitalis has arisen, the surgeon has not only to consider the removal of temporal bone disease but also a far graver question, namely, the relief of intracranial inflammation by operation.

"Why condemn a patient with a discharging sinus in the temporal bone to harbor his disease for months or years when no surgeon would leave a patient with similar disease, for example, chronic empyema of the chest, or a sinus in the os calcis, to the caprice of fortune."

This extreme position may be influenced by the fact that Ballance is an aural surgeon rather than an otologist. Otologists should be able so to classify the types of aural discharge that they can avoid delaying operation until signs of imminent complications are present on the one hand, or operating merely because of the presence of suppuration on the other, and yet avoid an apparent simplification of diagnosis, as perhaps has been done by Shambaugh when he divided chronic suppurative otitis media into dangerous and nondangerous types, on the grounds that a marginal perforation is evidence of involvement of bone and a central perforation indicates that the disease is confined to the mucous membrane of the tympanic cavity. In an attempt to accomplish this end, Lillie,<sup>8</sup> in

1928, classified chronic suppurative otitis media on a clinical basis, a classification which is still followed at The Mayo Clinic and which is essentially the classification presented here.

#### CLASSIFICATION

*Type 1.* In this type, the discharge from the ear is mucoid in character and without the characteristic odor of decaying bone or cholesteatoma. The perforation may be small or large, and may be situated in any portion of the tympanic membrane, either central or marginal. When the middle ear can be seen, the mucous membrane is normal in appearance. There is no evidence of cholesteatoma, or hyperplastic change suggestive of underlying disease of the bone. The history is characteristic in that there may be periods of dryness, which sometimes are of long duration, and that reappearance or increase in the amount of discharge usually accompanies acute infections of the upper part of the respiratory tract. There is, however, no history suggesting acute exacerbation of mastoiditis. The discharge in these cases seems to come from the eustachian tube alone, and therapeutic efforts directed to this will usually terminate in success. Roentgenograms of the mastoid cells may show sclerosis, which usually is marked, but sometimes is minimal. There is no evidence of cholesteatoma.

*Type 2.* This type is fundamentally the same as Type 1, but there are added evidences of localized disease of bone, such as necrosis of the ossicles or granulation tissue, and polyps which spring from the annulus or attic. The character of the discharge is generally mucoid, but is persistent and increases in amount with "colds." The perforation in the tympanic membrane is usually large and if the polyps and necrotic ossicles are removed, the condition responds readily to properly directed treatment. Roentgenograms show similar findings to those in Type 1.

*Type 3.* The discharge in this type is purulent and fetid. There may be considerable evidence of underlying disease of bone, as evidenced by granulation tissue, and polyps which may originate from the region of the antrum and promontory. There is evidence of considerable disease in the attic, and cholesteatoma may be present. The membrana tensa may be destroyed in various degrees or may be virtually intact with a perforation into the attic, through the superior wall of the auditory canal. The hearing may vary from approximately normal to various degrees of the type of deafness which is characterized by fixation of the stapes. If care is taken in removing the so-called polyps, and if adequate exposure is afforded to treat the disease in the attic, complete cure may be secured. With the presence of cholesteatoma or rapidly recurring ex-



uberant granulations, attempts at treatment usually should not be persisted in beyond three weeks, without marked evidence of improvement, as the disease may have advanced more widely than is at first apparent. The roentgenogram should give the same appearance as in the first two types.

*Type 4.* In this type the discharge varies in quantity, and may be so slight as to constitute a small crust over a perforation in the attic, but it invariably is foul and usually has the characteristic odor of cholesteatoma. The drum may be intact, and the discharge may come through a fistula in the wall of the superior canal without any involvement of the tympanum proper; the perforation may be in the membrana flaccida, or central or marginal perforations may be present. Polyps, which are composed of granulation tissue, may be particularly marked, especially around the region of the round or oval window; varying degrees of nerve deafness may be present; a positive fistula test may be discovered, and a caloric test may reveal varying degrees of malfunction in the canals. Great circumspection must be used in testing the function of the canals, as an acute irritation of the labyrinth, or labyrinthitis, may be produced. The roentgenogram of the mastoid process may show definite evidence of the presence of cholesteatoma. When these conditions are present, attempts at medical cure are not only futile but dangerous to the patient.

When definite evidence of impending or present complications, such as headache, convulsions, drowsiness, choked disk, sepsis, vertigo, nausea and vomiting, and facial palsy are present, the necessity of immediate operation is, of course, obvious; but the condition should not then be classified as a chronic otitis media but under the heading of whichever complication is present. An acute mastoiditis occurring in the course of a chronic otitis media is also an indication for immediate intervention, as the amount of sclerosis usually present tends to the production of complications.

The treatment of chronic suppurative otitis media may be divided into medical and surgical, and is applicable as indicated in the preceding classification. I have found that in the first type of chronic otitis media, in which the disease is confined to the mucous membrane of the tympanic cavity and eustachian tube, thorough cleansing of the cavity, followed by the use of mild silver protein, which is forced through the eustachian tube, will usually give excellent results unless a secondary otomycosis has become established; in the latter case, treatment proper for this condition should be instituted. In Types 1 and 2, abnormal conditions of the nose and nasopharynx may have

great bearing on the condition, and attention should be directed toward correcting them, especially marked septal deflection and diseased adenoidal vegetation. Emphasis should also be placed on proper habits for blowing the nose and the patient should be warned against forcing infected material from the nasopharynx into the ear. In Type 2, polyps should be removed when present, and if necrosis involves the ossicles and they fail to respond quickly to ordinary treatment, they may be removed. In Type 2, in addition to silver salts, alcohol and preparations of boric acid, or the Sulzberg powder which consists of one part of potassium iodide and three parts of boric acid, may be used to advantage. Watery solutions should be avoided as they leave the cavity moist and lead to maceration.

In Type 3, the principal source of disease is in the attic, and proper exposure for treatment and adequate escape of retained matter are of fundamental importance, especially if cholesteatoma be present. It is in these conditions that intrameatal operations may be considered. It seems to me that if simple removal of a portion of the drum membrane is contemplated, the procedure is justified, but if removal of bone is necessary, I do not believe the procedure wise. As Ballance<sup>3</sup> has said, "Why try in the dark meatus to carry out a partial or complete mastoid operation when the trend of modern surgery is to bring every stage of every operation into the light." This advice seems particularly good in view of the fact that the younger Thies, in commenting on the results of his father, the originator of the intrameatal operation, mentioned the production of a facial palsy in six cases. Great care is necessary in removing polypoid granulations, especially when they seem to originate in the region of the promontory. It is to be remembered that polypoid granulations are protective to some degree against infection, and that their removal exposes raw surfaces to the action of pathogenic bacteria. When they are attached to the structures of the inner ear, their removal may expose this structure to bacterial invasion. In removing polyps in this situation, one should be careful to avoid traction and avulsion of the growth, which should rather be cut off as close to its origin as is consistent with safety. Further reduction may be secured by the use of a chemical cautery, which should be stopped if signs of irritation of the labyrinth are produced. If meningeal or labyrinthine signs are produced by any of these procedures, they should call for immediate surgical intervention, and it is well to leave word to be called immediately if any of these signs appear. Masses of cholesteatoma may be removed from the attic by use of the Hartmann cannula, but watery solutions should be sedulously

avoided, as cholesteatoma is extremely hygroscopic, and an acute swelling of the mass may be produced. In this manner, irritation of the labyrinth and extension of the disease to this and to neighboring structures may be produced. I have found few indications for the use of ionization in the treatment of chronic otitis media. In those cases in which it succeeds best, it is least needed, and in Type 3 if cholesteatoma is present in the attic, one would scarcely expect it to disintegrate under this treatment. The problem is really one of securing adequate exposure and pathways for discharge, and it is better to consider the condition from the standpoint of basic principles rather than to attempt to find a panacea which will cure despite common sense.

In considering the surgical treatment of chronic otitis media, one should visualize first the mechanical problem to be faced, and how the operative procedure is designed because the question is not so much one of removal of diseased tissue as it is of securing adequate escape for the desquamating epithelium and exposure of the involved region in order to complete inspection through the external auditory canal. The ideal radical cavity is one lined with stratified squamous epithelium, which has an inherent property of desquamating its superficial layers. If the product of desquamation is allowed to collect, it will result in the formation of a cholesteatoma. Since it is the mechanical pressure exerted by the cholesteatoma that leads to the extension of the disease and encroachment on the important neighboring structures with subsequent complications, it is especially important that no crannies be left for the retention of débris. After the usual preparation and incision of the skin, it is my practice to start the bony incision well forward on the slope of the posterior wall of the canal, approximately over the region of the "bridge," and to advance medially to the antrum. This is done because in many cases of chronic otitis media, either as the result of anomalies of development or subsequent disease, the upper knee of the sigmoid sinus may be very far forward, and I have seen instances in which it was situated over the most posterior portion of the antrum. In certain instances, the dura will dip down lateral to the tegmen antra, and both conditions will usually be found present together in a contracted mastoid process. If, therefore, the bony incision is kept well forward and over the region of the bridge, there is little chance of wounding either structure, and there is the additional advantage of producing a small cavity, which requires less protracted aftercare, whatever the relations present. After removing the bridge and the overhanging bone of the attic and antrum, great care is taken to lower the wall of the pos-

terior canal as much as possible, and particularly to remove the beak-like process of bone which overhangs the oval window, and to be sure that no extension of the tympanic cavity underneath the posterior wall is left unexposed.

If the drum has been largely destroyed by the disease, the remnants of the ossicles and the tympanic membrane are carefully removed, and special attention is paid to removal of the annulus tympanicus, as it seems to me that this structure is often the starting point for the formation of the so-called manometric membrane, sometimes called false eardrum, which occasionally will form and defeat the object of the operation. Care is also taken to remove any remnants of the tensor tympani and processus cochleaformis, which may be present. If possible, without sacrificing adequate exposure of the seat of the disease, the matrix of the cholesteatoma, if present, is left, as this is in reality, an excellent skin graft already in place.

If there has been no destruction of the tympanic membrane, and if the disease is confined to the attic and mastoid antrum, I leave the structures of the middle ear in situ. The free edge of the tympanic membrane, which is left after the removal of the bridge and the lateral wall of the attic, is pressed down over the ends of the ossicles and the medial surface of the operative cavity. The principal advantage of this method is in leaving unexposed the normal mucous membrane which covers the promontory and other portions of the middle ear, which will otherwise secrete mucus and leave a wet ear. This method also will more nearly insure against any increased loss of hearing which might follow operative procedures on the middle ear.

We do not routinely use skin grafts on mastoid cavities at The Mayo Clinic, but in the aftercare we strictly avoid packing the postoperative cavity, as it is our opinion that this practice stimulates the growth of excessive granulations. The first dressing is allowed to remain in place until the fifth day, and when it is removed, nothing is replaced and the cavity is cleaned of secretions by gentle suction and the use of alcoholic solutions. We dismiss our patients about three weeks after operation, and ask them to return for observation in approximately six months.

#### CONCLUSIONS

1. Chronic suppurative otitis media is distinct pathologically and clinically, especially from any acute process.

2. Wittmaack's theory is invaluable in integrating clinical and pathologic knowledge, but should not be an object of blind veneration.

3. Chronic suppurative otitis media may be classified clinically so as to separate those types



which are amenable to treatment from those in which temporization is dangerous.

4. Several details of medical and surgical treatment, which seem to be worthy of special attention, have been given.

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### EXPERIENCE WITH CARE OF URINARY TRACT INFECTIONS\*

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In spite of the vast amount of literature on this subject, the problem of urinary tract infections still remains with us. Because of the great number and variety of therapeutic measures in vogue, one is forced to the conclusion that no single one is completely efficacious. The practice of medicine deals with the care of the patient and this emphasizes the fact that each one is a problem unto himself. They should not be thrown together and managed as a group. Statistical studies are interesting and sometimes helpful, but at other times one wonders as to their value. Nevertheless, we should encourage experimental study, and keep in touch with our clinics and hospitals in order to enhance the fund of our knowledge which in turn will accrue to the interests of our patients. Briefly, urinary tract infections, for our purposes, can be classified into the acute and chronic phases. Variations of one or the other, of course, are recognized.

#### ACUTE PHASE

The acute phase of urinary tract infections is often seen in the young, frequently in the adult, and less seldom in the aged. A general diagnosis may invariably be made when the picture represents a systemic process as seen in a patient with a temperature of 102 degrees, tenderness in the renal area, pus and blood in the urine, and a history of one to six weeks' duration. Such a patient will respond and recover, under general supportive measures such as those prescribed for pneumonia or typhoid fever. In the absence of pain or colic of stone these patients should be spared measures of instrumentation which might further deplete their resources of resistance to the septicemic invasion. We feel certain that errors of omission do not occur especially in the early stages of urinary infections, having in mind the use of the cystoscope and the ureteral catheter. The information obtained from their use is of doubtful value when the lesion involves the renal cortex only, and no points of obstruction are encountered in ureters, bladder, or urethra. It is important to remember that in the presence of acute urinary infection great pain does not exist. If present, it is not outstanding, if there is no obstructive factor to the urinary stream. Therefore, these patients should be spared cystoscopy. With the advent of pain and other signs pointing to obstruction, the picture is entirely changed and immediate instrumentation is then indicated.

Acute inflammatory disease as it applies to the kidneys, bladder and prostate in the male is a secondary manifestation of an infectious lesion elsewhere: upper respiratory tract as seen in the sinuses, and tonsils or abscesses at the roots of the teeth are frequent incriminating sources. Then, too, the gallbladder, colon, and appendix should come under suspicion. We have seen very few instances of a preceding history of furunculosis or other cutaneous infections as reported by Beer, Kretschmer and others.

Let me hasten to say when these etiologic factors are recognized they should not be attacked with efforts toward elimination until the patient is well advanced in the convalescent stage toward recovery. General measures of support, bed rest, forced liquids, restricted, bland, nutritive diet, together with local aids to be mentioned later, not only help to correct the difficulty within the urinary tract, but have a quieting effect on distant foci of infection. Well do I recall the instance of a patient, a physician, fifty years of age, who developed a severe acute, nonspecific prostatitis, and who required about four weeks for his recovery. Multiple areas of infection about the teeth were

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later discovered long after local evidence of the prostatic infection had disappeared.

Not infrequently we are confronted with patients who are sick and extremely toxic with a high daily temperature curve of 103 degrees or more, and no suggestive signs of remission. We have found that cystoscopy and ureteral catheterization in these patients is a life-saving procedure, especially when there is defective drainage in either the upper or lower ureter. However, if the patient is in a moribund state, intervention is of no avail. Care should be exercised not to induce reaction, or in other ways add to the load with which the patient is already burdened. This distressing feature is prone to occur if the patient is apprehensive, nervous, or suffering from symptoms of an acute bladder infection. Adequate narcosis in one form or another is indicated. It seems to me this is very important. Perhaps there is no other class of patients who are more grateful than those who are spared pain and distress during and following instrumentation of the urinary tract. In youngsters the administration of the barbiturates instituted twelve hours before the examination, and local anesthesia properly administered at the time of examination, is all that is needed. In appropriate dosage the barbiturates apply equally as well in adults. As mentioned last year before the section on pediatrics, complete cystoscopy and ureteral catheterization in youngsters should not require more than fifteen minutes. If facilities have been previously arranged, as they should be, many of these examinations can be shortened to ten minutes; this includes both measures in treatment and diagnosis.

The fact that a urinary tract infection produced by a toxemia or generalized infection will clear up and disappear when the original cause has been eradicated is conclusive evidence that the urinary tract is normal from an anatomic standpoint, that is, there are no anomalous or acquired defects. It is also significant that the patient is harboring no stones, malignancy, or tuberculosis.

#### CHRONIC PHASE

Too frequently, however, we are faced with the situation where the condition is described as a chronic or relapsing type of an acute process. An occasional attack of mild hematuria may be obtained in the history, and it may reappear from time to time. The presence of pus and blood in the urine is always significant and calls for an accurate and exacting diagnosis and not for the administration of methenamine and other antiseptics by mouth. Of course, we are all grateful when the patient's symptoms are relieved, but it should always be explained to him that the future is dangerous if the cause of his trouble remains un-

known. With the advent of intravenous urography, clearer delineation of the x-ray, cystoscopic, and laboratory data, all of these patients should be spared the element of uncertainty. The terms pyuria, hematuria, cystitis, and even urinary infection are not truly diagnostic—when by x-ray and cystoscopy a stone in the right kidney is discovered or it may be a waving papilloma attached to the wall of the bladder which when once seen is not easily forgotten. The so-called chronic urinary infections, especially if of very long standing, usually turn out to be tuberculosis of one or both kidneys. Recently a man thirty-seven years of age applied for life insurance. To his apparent surprise, his acceptance was delayed because there were a few pus cells in the urine. He had not thought it necessary to mention that an operation had been done seventeen years before for the removal of a right testicle. A simple chronic infection of the prostate gland was suspected at first and treatment was instituted for correction. Unfortunately, however, the urine continued to show pus, and further search revealed a focus of infection in the right kidney with tubercle bacilli. The pyuria in this instance had existed for many years.

Occasionally coexistent pathology can occur in the genito-urinary tract which will be independent of the original complaint. For example, a patient was seen during our early years in practice in whom a positive diagnosis of a specific urethritis was made. The response to local treatment proved stubborn due to the presence of multiple, long standing strictures of the urethral canal. For one reason or another sounds were not used until later, and these combined with an x-ray film revealed the presence of a fairly large vesical calculus, much to our surprise and chagrin. The dictum as enunciated by Keyes years ago was, "make a diagnosis but be prepared to alter or change it for a new one if the occasion demands." In this particular instance the original diagnosis was correct with the addition of a new discovery.

#### GENERAL CONSIDERATIONS

A large percentage of patients suffering from urinary infections are seen by those engaged in general practice. This is as it should be and the general practitioner should be encouraged. It is gratifying to come in contact with those who are handling their patients in an accepted and scientific manner. All who deal with urinary tract infections should actively use the microscope, and along with the microscope and almost equally as important, is the diligent use of the urethral catheter. One should never arrive at the decision that his patient has pyuria or hematuria in the absence of a catheterized specimen. If culture studies are to be made as they should be, the catheter then is



indispensable. These procedures in practice are common knowledge to all of us, but they are so important that it seems to me they bear repetition time and time again. If the patient has a bacillary type of infection (about 70 per cent of all infection is this type), it is essential to know which type of colon organism is present and whether it is of the aerogenes or communis groups. The aerogenes type does not respond to the ketogenic diet, while in the latter this dietary management is almost specific. If the culture of the urine proves to be negative, a characteristic of tuberculous infections, it would be a serious mistake to place the patient on the ketogenic diet. We have not viewed such an instance. However, with the more prevalent use of this form of therapy in the future, caution should be exercised to see that tuberculosis does not exist. There are many other interesting features we would like to refer to but time will not permit.

#### LOCAL MEASURES

When urethral tools are employed in the presence of urinary tract infections, chills with high temperature elevation are likely to be precipitated. Preventable to a certain extent, they are prone to appear when least expected and the onset occurs at a time when the patient is in a state of fairly well being. It is impossible to say when a chill may or may not occur, so the patient should always be apprised of this risk. A note of warning given in advance by the physician will relieve the situation for the patient and everyone concerned. The intravenous use of salihexin or methenamine before instruments are passed will usually prevent these chills. Bladder lavages appear to exert a beneficial influence in cases of pyelitis of infancy and early childhood, especially if performed before cystoscopy. Irrigations are helpful in acute cystitis in the absence of stones or malignancy. If severe hemorrhage or retention is present, provisions should be made for continuous free drainage following the irrigations. Bladder lavages are particularly useful in clearing up cases of purulent cystitis associated with or following prostatic resection, or from other causes in the absence of urinary retention. I should like to say just a word with reference to mechanics. A sufficient volume of warm distilled water or boric acid solution should be allowed to flow in and out in order to secure a complete cleansing effect. Instillations of five per cent mild silver protein or one-half to one per cent aqueous mercurochrome help to hasten the healing process. The results obtained will vary directly to the skill in the administration. If at all possible, lavages should be a part of the routine preliminary to open surgical

procedures involving the urinary bladder and renal pelvis, where evidence of infection is present. If this is done more lives will be saved.

#### CONCLUSIONS

Acute urinary tract infections in the early stages respond best to general measures in treatment. In the presence of pain or other signs or symptoms pointing to obstruction intervention should not be delayed. An accurate diagnosis is absolutely essential in all types of long standing infection if a favorable outcome is to be anticipated. Local measures, such as lavages, etc., accentuate the pendulum toward recovery.

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#### PREOPERATIVE AND POSTOPERATIVE CARE OF THE THYROID PATIENT\*

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In the practice of modern medicine, a careful, painstaking history and thorough physical examination is a prerequisite to the proper care of any patient. Especially is this true with the thyroid patient because hyperthyroidism in itself produces no pain but tends to aggravate any abnormal condition with which it is associated, either functional or organic in character, and the clinician's attention may be attracted only to the associated condition and permit for too long this very important pathologic condition to go unrecognized. This too frequently happens when the condition is associated with some acute abdominal disorder, acute psychosis or diabetes. Time does not permit the reviewing of the diagnostic points here.

Single basal metabolic readings are of little value; only repeated readings by a competent technician under proper conditions aid in the diagnosis of borderline cases. In the presence of cardiac decompensation, the readings are inaccurate. It must be remembered that this test is only one factor in the examination of the patient, and that there are exceptions to the so-called normal readings; that is, a minus ten or twelve may be normal for that particular patient, and anything above

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that may denote hyperthyroidism. There is also a marked difference between hypermetabolism and hyperthyroidism so that even if a patient has an enlarged thyroid gland and a high basal metabolic reading, but little or no clinical evidence of hyperthyroidism, thyroidectomy promises little or no relief, especially if the diastolic blood pressure is 110 or more, because this case belongs to the so-called hypertension group of cases. Hypermetabolism too is often present in lymphatic leukemia, polycythemia, pernicious anemia, etc., so that blood examinations and clinical findings will rule them out, but it is well to keep in mind that achlorhydria and an enlarged spleen may occasionally be present in hyperthyroidism. Basal metabolic readings are of little or no value in the determination of operability and prognosis; only your full clinical findings and experience can do that. The impedance angle test of M. A. B. Brazier, while yet to be confirmed, promises to be a more reliable test than the basal metabolic reading for hyperthyroidism.

Sometimes the use of the therapeutic test in some of the borderline cases will help clear up the diagnosis; namely, with the use of some form of iodine, the hyperthyroid case will improve, and the anxiety neurotic case will not.

#### PREOPERATIVE CARE

The preparation of the hyperthyroid case for operation should include the following steps:

1. Rest; the patient should be in the hospital three to five days or more prior to the operation.
2. Fluid intake; should be encouraged, minimum not less than 3,000 cubic centimeters in twenty-four hours.
3. Diet; should be rich in fresh fruits, fresh vegetables and well-cooked cereals; if the blood pressure is high, it may be wise to limit the salt and protein intake.
4. Frankly inform the patient about the operation and instill confidence.
5. Medication for the condition and its various complications follow.

In toxic diffuse goiter Lugol's solution should be given for five days or more or until the maximum effect is obtained, but it should not be continued over a long period of time. The maximum effect usually appears in five to fifteen days. In moderately severe cases, the dose should be five to ten drops three times a day depending on the condition. In severe cases with gastro-intestinal and mental crises, larger doses given more frequently are advisable. This will control the vomiting, diarrhea, etc., lower the pulse rate, lower the basal metabolic reading, and quiet the patient in a few days. Lugol's solution should be given in fruit juices, as orange, grape, raspberry, cran-

berry or pineapple juice or in milk, using at least a half glass. If Lugol's solution cannot be taken by mouth it may be given per rectum using Lugol's solution, one dram, normal salt solution, one pint, and corn syrup, one ounce. This should be administered by the drop method and repeated every six hours. In severe cases where Lugol's solution cannot be given by mouth, especially when emergency complications occur, sodium iodide, 2.0 grams (31 grains) in 20.0 cubic centimeters of distilled water should be given intravenously. In toxic nodular goiter Lugol's solution usually need not be given over so long a preoperative period. Usually three to five days suffices. After the patient has received Lugol's solution, focal infections if present may be looked after. However, in some cases it may be advisable to do this postoperatively.

For edema if the urine contains no or few casts, we may give salyrgan in 2.0 cubic centimeter doses intravenously or intramuscularly, every second or third day. This not only relieves the edema but also acts favorably on toxicity. If the plasma protein content of the blood is below the critical level producing edema, then blood transfusion is indicated and the edema quickly responds.

The indicated medication for myocarditis with decompensation is digitalis leaves, grains 1-11, or tincture of digitalis, 2.0 cubic centimeters by mouth, or digifoline 2.0 cubic centimeters, intravenously or intramuscularly every four hours or until the full digitalis effect is obtained. We then give strychnine sulphate, grains 1/30 every four hours for three or four days, and repeat the digitalis dose if necessary. The patient should not be operated upon for at least four or five days after the last dose of digitalis is given.

For nervousness we prescribe luminal, grains one-half to one and one-half, followed by a half glass of water in the morning and evening, and if necessary at noon. If one wishes to induce sleep, the dose is ipralidon (Squibb), grains five and if the patient is not asleep in three hours, this dose may be repeated, or he may be given a suppository containing codeine and trionol. The night before the operation we give sodium ipral, four grains and if necessary repeat this dose in two hours. Two hours before the operation we give another four grains of sodium ipral, and from 1/6 to 1/4 grain of morphine with 1/150 grain of atropine forty-five minutes before the operation. We do not use scopolamine because too many people have an idiosyncrasy for the drug.

The ligation of the superior or inferior thyroid artery including the poles, either under local or gas anesthesia, is indicated now only in very toxic cases which are iodine resistant. These are usually



in children and are very rare. After ligation it is advisable to wait at least six or eight weeks before performing a thyroidectomy.

Large doses of Lugol's solution are indicated prior to operation in those thyrotoxic cases with acute emergencies. If contraindicated Lugol's solution should be given rectally, or sodium iodide intravenously. Our procedure is to operate at once for the acute condition, and give fluids, glucose and iodine postoperatively until the toxic symptoms subside. After the patient recovers from the acute condition, we perform a subtotal thyroidectomy.

When patients who have been operated upon for some malady other than thyroid disease develop symptoms out of proportion to the operation, such as marked restlessness, an exceedingly high temperature, or rapid pulse, especially if auricular fibrillation is present, we give iodine, orally, rectally, or intravenously, and force fluids.

Diabetic patients are occasionally thrown into sudden coma as the result of hyperthyroidism. If a diabetic patient does not respond to diet and insulin, one should immediately think of hyperthyroidism. If this condition is found to be present, iodine should be given even if the patient is in a coma, with glucose and insulin given intravenously, if necessary, in the form of sodium iodide.

Patients with thyrotoxic delirium are poor surgical risks and should receive the usual preliminary treatment for hyperthyroidism plus blood transfusions and sedatives. On the day of operation after the delirium has subsided we give large doses of Lugol's solution.

Hemiplegia developing in a toxic diffuse goiter case is no contraindication to operation.

If the thyroid gland is toxic in the early months of pregnancy we give large doses of Lugol's solution, and if it is still toxic we perform a subtotal thyroidectomy or lobectomy as indicated. Here the danger of miscarriage is not great. If a goiter becomes toxic in the latter months of pregnancy and does not respond to Lugol's solution (which is seldom), it is less hazardous to do a rapid cesarean section after which the toxicity usually subsides. Thyroidectomy in the latter months of pregnancy is more hazardous because of the increased vascularity due to pregnancy plus that due to toxic goiter, and especially because of the danger of the premature induction of labor in addition to the effect of the toxic thyroid gland. Subtotal thyroidectomy should be done as soon as the patient recovers from pregnancy.

Collapse of the trachea usually occurs in those old cases with large toxic nodular goiters, which have produced a softening of the tracheal ring. If such is the case it is much safer to do a lobec-

tomy and then later remove the other lobe, as my experience has been that collapse seldom if ever occurs.

#### POSTOPERATIVE CARE

As soon as the patient is returned to his room after the operation, he should be given 1,000 cubic centimeters of a five per cent glucose normal salt solution, with five to ten units of insulin by hypodermoclysis. A proctoclysis consisting of corn syrup, one ounce, and Lugol's solution, one dram to one pint of normal salt solution, may be given by the drop method every six hours. Hot and later cool water may be given when the patient is able to retain it; fruit juice with Lugol's solution may be given as soon as it can be retained, followed by cooked cereal, etc. Morphine sulphate, grains  $1/6$  to  $1/4$  with atropine sulphate, grains  $1/150$  should be given for pain or restlessness. Another combination is ipralidon with strychnine, grains  $1/30$  every four hours. If necessary a ten per cent glucose normal salt solution may be given intravenously using 800 to 1,000 cubic centimeters, and fifteen to twenty units of insulin. Of course the bed rest should be elevated on the patient's return to bed. Crises occur rarely, but when they do, if the patient is properly prepared, we give Lugol's solution orally or rectally, or if necessary, sodium iodide intravenously. If the patient has a high degree of fever he should be placed in a bathtub of water, and packed in about fifty pounds of cracked ice.

Aphonia may be the result of an inflammatory reaction, or it may be toxic in origin, and if such is the case, it will disappear within four months. If forceps are applied to the lobe before cutting there is less danger of injury to the recurrent laryngeal nerve, because pressure on this nerve immediately produces a different type of breathing, warning you to release the clamp before damage is done. If tracheitis occurs, we give morphine sulphate,  $1/16$  grain, atropine sulphate,  $1/300$  grain, every three hours and calcidin troches every hour or two. We instruct our patients to continue Lugol's solution for six to twelve months after operation.

We have seen tetany occur in a few cases preoperatively, and thought it due to toxins from the toxic goiter, and we have seen it occur following thyroidectomy in cases where we felt reasonably certain that the parathyroid gland had not been removed. If tetany does occur we prescribe either calcium gluconate by mouth or intravenously, or calcium lactate in one to two dram doses with lactose, one to two ounces in diluted lemon juice three times a day, and if necessary Collip's parathormone, starting with twenty unit doses and increasing the dose until the condition is con-

trolled. In every case of subtotal thyroidectomy the gland should be inspected to see if any parathyroid glands have been removed, and if one is found it should be transplanted in the belly of the sternocleidomastoid muscle.

Postoperative parotitis can usually be avoided by proper hygiene of the mouth and by the prevention of dehydration. A very simple but efficient way to keep the mouth moist is to allow the patient to chew gum. If postoperative parotitis occurs the early application of radium as advocated by Dr. Fred Rankin is probably the most effective, "four applications of radium of eight hours duration at eight hour intervals using four fifty milligram tubes."

Pulmonary edema is an alarming symptom and as soon as cyanosis begins to appear the patient should be put in an oxygen tent. If this is not available, one should follow Barach's suggestion; namely, using two No. 10 French catheters with six or eight perforations in the end. These should be fastened in the nose and five liters of oxygen per minute should be permitted to flow in either side. The catheters should be cleaned every twelve hours and one can use the common commercial high pressure tank with calibrated gauge for this purpose. Here the inspired air under such circumstances contains about thirty-seven cubic centimeters of oxygen a minute.

Certain patients have very definite evidences of hyperthyroidism at varying periods of time after a subtotal thyroidectomy has been performed. Some are frankly toxic and the diagnosis is clear; some are mildly toxic and careful study may be required for diagnosis. Hyperthyroidism following thyroidectomy may be a recurrence but is usually simply a persistence of the disease due to failure to remove sufficient thyroid tissue and perhaps failure to remove a focal infection which may have been an etiologic factor in the primary condition. Occasionally an accessory thyroid gland is found at the base of the tongue, in the axilla or the groin, and may be toxic. If so, this may be removed, but one should always leave some functioning thyroid tissue somewhere in the body. The important feature is not how much gland tissue is removed, but how little is left. As a rule, three months after thyroidectomy, the basal metabolic rate should be normal and there should be little or no evidence of hyperthyroidism. If three months after the operation the patient still has a high basal metabolic rate and other corroborative symptoms, we give ten to twenty drops of Lugol's solution daily, and have the patient return in six weeks for another examination. If evidence of hyperthyroidism persists, further removal of gland tissue is indicated.

In true hypothyroidism in the adult, the basal metabolic rate is usually below minus twenty-five, the blood cholesterol is 200 milligrams or over, other clinical evidences are present, and the patients respond to thyroid medication. Patients with a low basal metabolic rate, with little or no clinical evidence of hypothyroidism, and with a normal amount of cholesterol in the blood (150 milligrams or below), will not improve with thyroid therapy because they have a non-mixedematous type of hypothyroidism. It is well to remind you that there is a difference between hypometabolism as often seen in cases of nephrosis, psychoneuroses, obesity, and undernutrition, especially in certain types of wasting diseases, anemia, etc., and true hypothyroidism.

There are varying degrees of lack of function of the thyroid gland which may follow not only an operation but the use of x-ray or radium and infection. One of the most diagnostic signs is puffs to the outer angle of the eye, not under the eye. There is an increase in the general bulk of the body; a firm inelastic swelling of skin which does not pit on pressure; dry rough skin, and the lines of expression of the face may be obliterated. These patients have coarse features, broad thick lips, broad thick nose; marked slowness of thought and action, defective memory, dry falling hair, subnormal temperature, pads of supraclavicular fat, thick, slurring speech, and no axillary perspiration. In the female we commonly find menstruation absent or very irregular. We have seen two markedly severe cases with convulsive seizures similar to epilepsy occurring as often as eight to ten times in a morning. These seizures disappeared after thyroxin was taken, and reappeared after the thyroxin was discontinued. One patient had had a portion of her thyroid gland removed twice at the University clinic, and the other one had received treatment in one of the largest clinics in the country. Treatment in such cases consists of thyroxin or thyroid extract. We should remember that the average discharge of thyroxin per twenty-four hours in the adult is .33 milligrams, and that one milligram of thyroxin usually produces a three per cent increase in the basal metabolic readings.

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#### THE RELATIONSHIP BETWEEN THE INDUSTRIAL SURGEON, THE INSURANCE COMPANY AND THE EMPLOYEE\*

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The passage of the compensation laws in the different states brought into existence insurance companies who are writing compensation insur-

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ance, and presented us with the problem of the injured employee who knew he was going to get compensation and tried to secure more than he was entitled to. It has also created the industrial surgeon who acts as a buffer, if you wish to call it such, between the insurance company and the injured employee.

I think possibly I will say a few words first in regard to the insurance companies. Naturally, they are interested in having physicians who take care of their work to be those who have had a certain amount of training in handling industrial cases. Therefore, they expect certain definite treatment for their injured employees. They expect them, the physicians, to answer all calls as promptly as they can, make a very thorough examination, determine whether that patient shall be sent to the hospital or whether he can be treated at home, or whether the patient can come to the office for treatment. They also expect the attending physician to take x-ray pictures whenever it is necessary, and to make such check-up x-rays as are required. However, they assume that the attending physician will not take more pictures than are necessary. They also expect a certain amount of laboratory work and an adequate number of dressings for any injured employee. If the patient is sent to the hospital, they naturally feel that the attending physician will discharge that patient as soon as his condition warrants. In other words, summing up the attitude of the insurance companies, they expect the attending physician to return this man to his employment in the best physical condition possible, in the shortest length of time, and with the least possible expense.

The injured employee, on the other hand, has an entirely different viewpoint. He thinks first of all, "How long am I going to be off?" He doesn't, at the time of injury, take into consideration the severity of his injury or the difficulty which the attending physician is going to have in repairing that injury. After the physician has done all that he possibly can for this injured employee, he begins to think, "How much compensation am I going to get?" and when the doctor tells him it is possibly ten per cent or fifty per cent, in very many cases he would like to get at least twice that much, if possible.

At this point the physician enters, acting as a buffer between the insurance company and the injured employee. It is of paramount importance for the physician to be impartial and forget the fact that the insurance company is going to pay the charges. He must make a report commensurate with the amount of injury or amount of disability that resulted. I recently had occasion to examine a man, and I reported a 75 per cent loss of function in his leg. The insurance company

offered this gentleman 30 per cent. That illustrates very clearly a physician's position. The insurance company is dissatisfied with you for estimating a 75 per cent disability when they think it should be 30 per cent, and the man is dissatisfied with 75 per cent, when he feels that he should get 100 per cent.

In conclusion, I hope you will bear in mind that a very definite relationship does exist between the industrial surgeon, the insurance company, and the employee.

#### Discussion

**Dr. Frank M. Keefe, Clinton:** The scope of this subject is of such magnitude, that in the few moments allotted to me I can only dwell on the salient points relative to the relationship between the industrial surgeon, the insurance company or carrier, and the employee. The importance of it should force the attention of every physician who elects to treat industrial cases.

The physician who has a liking for industrial practice and whose contact shows a gradual enlargement soon finds himself devoting his full time to his endeavor, although not full time in any one corporation. The physician or surgeon dealing with diversified industries rapidly develops a wealth of experience.

Fundamentally, all employees are entitled to the same standard of medical supervision and service, irrespective of the size of the company. The majority of employees do not know the compensation law. Notices, properly displayed, of the compensation act would be of great value to the employees as well as the employer. Employees should be sent to a designated physician, and a workingman should not choose his own physician. This practice, I believe, is dangerous. Although the man may be qualified as a family doctor, he may not be qualified as an industrial surgeon, and the reverse, of course, is true. The compensation should be thoroughly explained to them. They are frequently misled by false information which results in legal procedure, generally resulting in the loss of position and money. Trivial as well as major injuries should be reported. Too much cannot be expected of the average employee whose chief aim is making enough money to support his family.

As for the insurance company or carrier, by far the ideal arrangement is the self-insured, and, from the surgeon's standpoint, this plan is carried out by a great many of the railroad trunk lines under the direct supervision of a chief surgeon who, in turn, reports to the claim department. They comply with the various state compensation acts, and their settlements are, as a rule, satisfactory with the disabled employee. Their safety first plan has worked to an advantage to both the employee and the employer. As for the mutual and stock companies, we have all had our pleasant and unpleasant experiences with them; all the way from cutting your fees by some subordinate trying to make a name for himself, to questioning you as to your professional ability, honesty or judgment on the severity of the case, whereas if they would conduct their own department and let

the surgeon work with them conjointly, the whole situation would be more harmonious and probably more economical.

The insurance company has its troubles, too, because we have been careless in not reporting cases early and not being specific in our reports, description of injuries and the estimates of disabilities, and giving subsequent reports on the progress of the complications. Our profession should sponsor an educational program to appraise a corporation from the standpoint of dividends which adequate medical service pay, and if industry makes the demands, surely the medical profession can meet them, as we have in the past.

Assuming the inherent right of the carrier and the employee, what, then, are the essentials of the medical service? Briefly, the duties that an industrial surgeon should be called upon to perform are:

1. The care of injuries, diseases and abnormal conditions covered by the compensation act.
2. The pre-employment examination, and periodical re-examination during employment.
3. The care of the industrially disabled.
4. The eradication of accident and health hazards.
5. The prevention of the spread of communicable diseases.
6. The regulation of sanitation in the factory.
7. Cooperation with the employer in the selection of jobs to fit the physician and mental status of the employee.

Of the many industrial surgeons, how many do we find performing these duties? Unfortunately, we find that the practice is limited to the care of accidents and disease. Much has been said about the ineffectiveness of the physician in dealing with industrial problems, and there is no denying that there is some cause for this criticism, but far too little has been said about the backwardness of the corporation in recognizing the necessity for complete medical service.

## THE FINLEY HOSPITAL CLINICOPATHOLOGIC CONFERENCE

### PRENATAL DIAGNOSIS OF SPINA BIFIDA

LUKE A. FABER, M.D., and  
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Spina bifida, one of the common congenital malformations, is usually diagnosed only after birth. The case to be reported is of interest because an accurate, prenatal, roentgenologic diagnosis was made.

#### CASE REPORT

*Chief complaint:* The patient was first seen because of the apparent onset of labor as manifested by periodic uterine contractions lasting thirty-

five seconds at twenty minute intervals and the passing of considerable amniotic fluid from the vagina.

*Family history:* The family history is essentially negative. The patient's husband is a physician.

*Past history:* Upon elicitation of a history by systems, the past history was found to be entirely negative except for this pregnancy which had caused the patient no undue discomfort. She had been under the care of an obstetrician in Chicago since the beginning of pregnancy and had planned to be delivered by him, but while on a visit to her home, labor began.

*Physical examination:* The patient was a young, white woman, pregnant for the first time. Her temperature was 98.4 degrees; the pulse was 98 per minute; the blood pressure was systolic 122, and diastolic 86. She had abundant, fine, brown hair; there were no scars or exostoses and the scalp was clean. The eyes were normal; the pupils were equal, measured two millimeters in diameter and reacted normally to light and accommodation. The ears were normal. The nose showed no evidence of congestion, obstruction to ventilation or sinus disease. The mouth was clean, the dental hygiene was excellent and there were no ulcerations or abnormal pigmentations. The tongue was warm and moist and the pharynx was not acutely injected. The neck was not restricted in motion; there was no rigidity, palpable lymphadenopathy, nor was there any abnormal pulsation of the blood vessels. The thyroid gland was barely palpable and was normal in consistency. The thorax was symmetrical; the breasts were well developed and the nipples were normal. The areolae were highly pigmented and the tubercles of Montgomery were very prominent. The expansion of the chest was equal on both sides. On auscultation the breath sounds were normal and there were no râles or evidences of consolidation. On percussion the heart was not enlarged and the pulse beat was regular and of good quality. On auscultation the heart sounds were clear and distinct; no murmurs or adventitious sounds were heard. The abdominal examination showed the uterus enlarged to full term pregnancy. On palpation the fetal back was to the right, the head in the inlet, the breech at the fundus, and the small parts on the left. There were no areas of tenderness in the abdomen, and the liver, spleen, and kidney were not palpable. The uterine contractions could be easily felt. The fetal heart tones were 152 per minute and were heard with maximum intensity in the right lower quadrant. No vaginal examination was made. Upon rectal examination the cervical os was found to be dilated two centimeters, the membranes had rup-





tured, and the presenting parts were floating. The pelvic measurements were as follows: intercrystal, 27 centimeters; interspinous, 24.5 centimeters; bitrochanteric, 30.5 centimeters; external conjugate, 19.5 centimeters.

*Course in hospital:* From the above findings the diagnosis of a face presentation was considered. Three weeks before admission her regular obstetrician had made a diagnosis of breech presentation. In order to clarify the diagnosis, a roentgenologic examination was considered advisable.

*X-ray examination:* X-ray examination showed a single pregnancy, the head presenting with the back on the right and semi-anterior. The occiput was posterior and the brow was presenting. There was a malformation of the head with defects of the membranous bones of the skull. In addition, there was an extensive spina bifida which appeared to involve the entire spine, but was most marked in the upper lumbar region. (Figs. 1 and 2.)

*Subsequent course:* Six hours after admission to the hospital, the patient delivered spontaneously, a female, weight six pounds, thirteen ounces, with findings as disclosed by the x-ray examination. In spite of every possible precaution the spina bifida became infected and there was evidence of meningitis (septic temperature, drowsiness, and hydrocephalus). The baby died twenty days after birth. Wassermann tests made in the meantime on each parent and on the baby were negative.

*Final clinical diagnosis:* Infected spina bifida; hydrocephalus with meningitis.

*Autopsy abstract:* A large defect was found in the lumbar region. This measured fifteen centimeters in length and six centimeters in width. It was covered by a thin membrane (Fig. 3). On incision a large cavity filled with fibrinopurulent fluid was found beneath. The exudate surrounded the cord and filled a wide defect involving the greater portion of the spine (Fig. 4). The head was considerably distended and on examination the ventricles of the brain were distended with purulent fluid. There was also considerable exudate about the cerebellum and medulla. The bones of the skull were poorly developed and the various suture lines were widely separated. The bones were only partly calcified and in many areas appeared as translucent membranes. The general examination presented no other defects or pathology.

#### DISCUSSION

The point of unusual interest in this case is the prenatal diagnosis of the defect in the spine and skull as determined by x-ray examination. While

in this instance the diagnostic difficulties were comparatively slight because of the extent of the defect of the spine, in other cases with smaller or more unusual defects, the diagnosis might be very difficult. Probably the reason the prenatal diagnosis of bony defects of the fetus is almost never made is that the value of x-ray examination during pregnancy is not fully appreciated and utilized. Aside from the detection of developmental defects of the fetus, the roentgenologic examination is especially valuable as a means of determining the maternal pelvic measurements, the position and relative size of the fetus, and whether there is one or more pregnancies. Undoubtedly, if more fully utilized, the x-ray examination would aid in the reduction of both infant and maternal mortality rates. Aside from this, the forewarning of the defect of the fetus lessens the shock to the parents as compared to its discovery after birth.

Spina bifida (hernia of the spinal cord) represents the most frequent malformation of the central nervous system in children. The incidence is approximately one in one thousand births. The etiology is unknown. It may be possible that the defects are due to changes in the germ plasma of the parents or to injury of the growing embryo. Recent studies by Murphy and Mazer<sup>1</sup> indicate that congenital malformations occur on the average less frequently in the earlier birth ranks and more frequently in the later birth ranks. However, it is recognized that they occur in all birth ranks. It is also known that the defect occurs very early in embryonic life and results from the failure of the medullary groove to unite normally. The bony, muscular, fascial, and cutaneous coverings as a whole or in part fail to unite resulting in the different forms of spina bifida. One-half of all cases occur in the lumbar region and more than one-third in the lumbosacral or sacral portion of the spine. Not infrequently the defect of the spine is associated with other developmental defects such as hare-lip and talipes. As the result of the changes in the nervous elements, anesthesia, paralysis, or trophic disturbances may occur below the spina bifida. The treatment depends upon the extent and the character of the defect. Some forms require no treatment and in others the changes are so extensive that they are incompatible with existence. In selected cases the treatment is surgical and the results are fair. The danger in all types is infection of the spina bifida with ascending meningitis and hydrocephalus such as occurred in the case reported.

#### REFERENCE

1. Murphy, Douglas P., and Mazer, Milton: The birth order of 582 malformed individuals. *Jour. Am. Med. Assn.*, cv:849-851 (September 14) 1935.



STATE DEPARTMENT OF HEALTH

Walter Diering

TYPHOID FEVER IN IOWA

During 1935, reported cases of typhoid fever in Iowa numbered 193. Thirty-two deaths occurred, a death rate for the state of 1.3 per 100,000 population. For the first half of 1936 (January to June inclusive), 52 cases were reported to the State Department of Health. Thirty-four cases and eight deaths are recorded for the first three months of 1936.

Physicians Forward Information

Detailed information is available relative to 181 cases of typhoid fever, reported in 1935. This information is contained on case record forms, completed by attending physicians or local health officers. The department appreciates the interest and cooperation of physicians in supplying the desired data, upon which this brief consideration of typhoid fever is very largely based.

Distribution of Reported Cases

The accompanying map shows the distribution of reported cases of typhoid fever in 1935 and the number of cases in the various counties concerned. If the reporting of cases were more complete, it is likely that a larger number of counties would be represented on this map. For example, one death from typhoid fever occurred in Delaware county and one in Wapello county in 1935. These deaths, however, had not previously been reported as cases and case records are not at hand.

Distribution of Typhoid Deaths in 1935

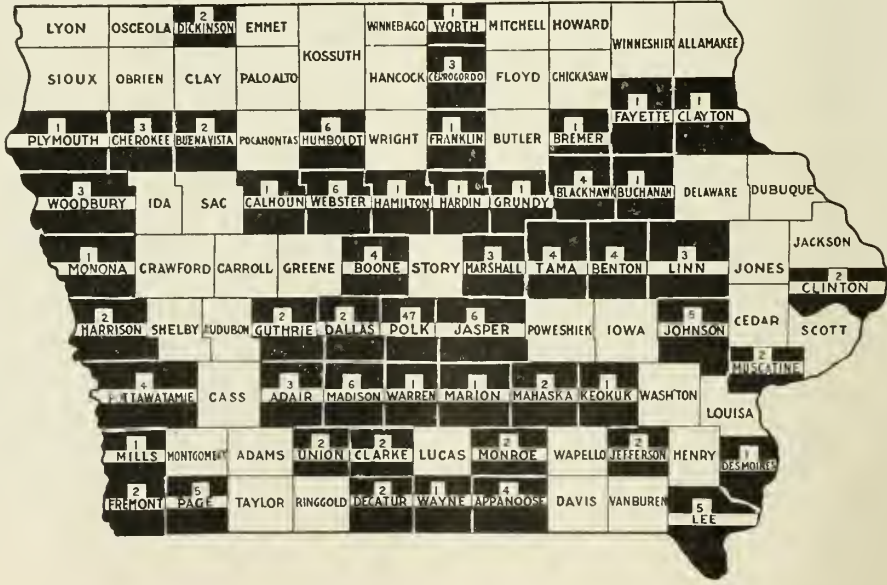
The 32 deaths recorded for the state last year were distributed as follows: Benton, one; Black Hawk, three; Boone, one; Clarke, one; Clayton, one; Dallas, one; Decatur, one; Delaware, one; Des Moines, one; Guthrie, one; Johnson, one; Marshall, one; Monroe, two; Muscatine, one; Page, one; Polk, seven; Pottawattamie, two; Wapello, one; Webster, two; and Woodbury, two.

Distribution by Age and Sex

The 181 case records for 1935 indicate distribution of cases by age and sex as follows:

	Male	Female	Total Male and Female
Age Group			
Under 1 year	0	1	1
1- 4 years	1	4	5
5- 9 years	15	10	25
10-14 years	12	15	27
15-19 years	18	10	28
20-29 years	16	11	27
30-39 years	14	3	17
40-49 years	8	6	14
50-59 years	10	3	13
60-69 years	3	3	6
70-79 years	1	0	1
80 or over	0	0	0
Age not stated	10	7	17
	108	72	181

Map Showing Distribution of 174 Cases of Typhoid Fever in Iowa, During 1935



Urban and Rural Distribution

The 181 case records indicate that 98 patients lived in urban communities (population over 2,500) and 76 in rural areas (population less than 2,500). Three of the case records failed to state place of residence. Four patients lived in adjoining states (Illinois, Minnesota, two, and Missouri).

Factors During Month Before Illness

1. Travel
- Forty-seven of the patients traveled away from home during four weeks prior to illness. Seven others visited adjoining towns or worked on threshing crews. In at least 68 cases, patients had not been away from home preceding onset of illness.
2. Water supply
- Well or cistern water was used in 106 and city water in 54 instances. Twenty-one of the 181 case records gave no information regarding the kind of water used.
3. Milk
- Eighty-six records show that raw milk was used during four weeks preceding acute illness. Pasteurized milk was concerned in 16 cases, both raw and pasteurized milk in two instances. Among the total of 181 records, 77, or 43 per cent did not state clearly whether raw or pasteurized milk was involved.
4. Excreta Disposal

Twenty-five records contained no information relative to the type of excreta disposal. The privy served this purpose in 99 instances, the sewer in 53 cases. Four records mentioned the septic tank or other type of disposal.

5. Sanitary Conditions

General sanitary conditions were stated as being good in 53 homes, fair in 44 and poor in 46 instances. Thirty-four records contained no statement regarding sanitary status.

Sources of Infection

1. Water
- a. An epidemic with thirty-eight cases and three deaths was caused by sewage contamination of a water supply at the Polk County Farm.
- b. Seven of the case records mention the drinking of untreated river water or exposure to such water (swimming), as a probable source of infection.

2. Typhoid carriers

The rôle of the typhoid carrier as a source of infection in sporadic as well as multiple cases of typhoid fever can scarcely be overrated. Given a case of typhoid fever, the history of this illness as affecting some member of the household in the recent or remote past, should be regarded as highly significant. Among the 181 records under consid-

eration for 1935, twenty-eight reveal a history of past typhoid infection as affecting some person in the home environment. Among twenty-six of these people with positive past history of typhoid fever, six had their attack of the disease less than five years preceding the current case, two within ten years before, five from ten to nineteen years before, five between twenty and twenty-nine years preceding, three between thirty and thirty-nine years, and five, forty or more years prior to the cases concerned and reported in 1935. Twelve of the typhoid case records for 1935 mention a suspected typhoid carrier. Iowa was fortunate in 1935, in that no milk-borne outbreaks of typhoid fever were reported. Typhoid carriers are known to play a major part in epidemics of milk or food-borne nature. During 1935, four typhoid carriers were demonstrated by laboratory examination of bodily (fecal) discharges and placed under supervision. With the continued interest of attending physicians, it should be possible to discover more of the typhoid carriers and to make clear the source of infection in a larger number of the reported cases of typhoid fever.

SPOTTED FEVER SERUM AVAILABLE

As announced in the June number of the JOURNAL, pages 312-313, the State Department of Health has available in case of need, a limited supply of convalescent spotted fever serum. Donors for this serum form a small group of persons, mostly adults, who during the past three years have recovered from a known attack of Rocky Mountain spotted fever. Rocky Mountain spotted fever has not been reported in Iowa thus far in 1936. Physicians who may observe a case and who desire to use human immune serum, are asked to notify the State Department of Health, telephone number 4-9111, Extension 137 (after 5 P. M., telephone 7-1417).

PREVALENCE OF DISEASE				Most Cases Reported From
	May '36	Apr. '36	May '35	
Diphtheria .....	17	18	40	(For State)
Scarlet Fever.....	674	1000	355	{ Pottawattamie, Woodbury, Dubuque, Polk
Typhoid Fever.....	12	1	6	Fayette
Smallpox .....	169	169	21	Woodbury, Polk
Measles .....	25	18	1688	Page, Black Hawk
Whooping Cough ...	34	58	60	Linn, Lee
Cerebrospinal Meningitis .....	8	10	12	Polk
Chickenpox .....	235	233	347	Dubuque, Webster
Mumps .....	402	637	1050	{ Black Hawk, Montgomery
Polioomyelitis .....	1	0	3	Polk
Tuberculosis .....	55	42	77	(For State)
Undulant Fever ....	9	8	13	(For State)
Gonorrhea .....	138	119	152	(For State)
Syphilis .....	117	111	143	(For State)



# The JOURNAL of the Iowa State Medical Society

ISSUED MONTHLY

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## WHAT PRICE ALTRUISM

No more interesting chapter in medical history can be found than that dealing with the ethical and financial aspects of practice. From earliest times we find an insistent demand on the part of the public for medical service, but complementary to this demand is the urge that the service be rendered without price. Altruism is stressed as a virtue by the ancient, and this attribute has been lauded by a benefited and questionably appreciative public throughout the ages. The oath required of the physicians of India, fashioned after the oath of Hippocrates, definitely requires that the physician render his service whenever needed and without fee or price. His reward is promised in spiritual advantage. This principle of professional altruism has persisted in one form or another up to the present time, and while frankly and grossly abused by the public so generously served, stands today as a most honored and honorable monument to the profession of medicine. We would not abnegate our enviable position in this regard for greater financial gain, nor prostitute our practice by denying its benefits to those who cannot pay. We would not forget the obligation to serve a suffering humanity nor betray the public confidence in the maintenance of public health. We would abhor practices devised solely for pecuniary gain. On the other hand, "the laborer is worthy of his hire," and the physician should temper his altruism by fairness and justice. The fee should be commensurate with the service rendered and fully earned, if our position of honesty with the public is to be maintained. A patient who can pay should be required to pay, and even forced, if necessary, to do so. The problem of the patient who honestly cannot pay is patently not so easy.

The burden of the care of the indigent should fall no heavier on the physician than on any other citizen and taxpayer. If the indigent class needs food, the grocers feel no obligation to supply groceries, or if shelter is needed there is no demand that the hotels throw open their doors without payment. Public funds, raised by direct taxation or in the form of donations as indirect taxation, provide the required food and shelter by payment for benefits received; but it is argued that these are necessities for life and therefore must be provided even at community expense. Those who argue this way believe, or at least imply, that medical service is not a necessity at least in the same sense as food and shelter, but to these unfortunate ones impoverished in health as well as in wealth, the one condition is fully as important as the other. A full stomach in a diseased body may bring more misery than comfort, and shelter to such an individual may only prolong suffering. Why then does the public make so little provision for the medical care of those unable to pay a fee adequate for their professional care?

It would seem that fundamentally our guidon of altruism has been largely responsible for the public attitude in this regard. Physicians in the past have rendered unlimited professional service, both privately and through the public institutions, with no greater compensation than the personal satisfaction which comes from a service freely given or a word of thanks from the ones served. Institutions have been provided for the housing of charity patients, funds have been established for the required equipment, nursing and orderly service, salaries for business manager and office personnel, but few institutions have ever considered a provision for the remuneration of the medical staff. A gratuitous professional service is expected, and usually easily obtained. Service is even demanded in some instances without the physician having a voice as to the conditions under which his service will be given. In other instances the professional staff has no voice even in the appointment or removal of physicians from the staff itself. A service is demanded by the institution, but the terms of this service may be unfair and unacceptable to the fair minded physician. Our altruism in many instances forces the acceptance of a plan of service devised by those without professional experience, since the public, schooled and accustomed to expect free service to the needy by the physician, would promptly register protest if the physician demanded change.

Perhaps we have overdone the spirit of altruism. Perhaps we are wrong in our assumption that our services should be so freely given, but in

this assumption are pitfalls. The physician cannot lose sight of a definite legal and moral obligation in service to the public. A desirable middle ground must be sought in which altruism may persist and at the same time impositions be checked and a clearer definition of responsibility in indigency fixed.

### THE SEASON'S FAD—SUNTAN

The vacation season is here and at this time a variety of strictly seasonal diseases and conditions appear. Many, if not most, of these illnesses are preventable and doubtless would be avoided if the public were fully informed of their causes. Unfortunately the public is not acquainted with the facts, and if informed at all, usually follows the advice of faddists rather than scientists. Apparently this field of preventive medicine is one that cannot be handled through the usual channels or by the public itself. It requires the guidance and advice of the family physician whose interest is undeniably personal, and in whose leadership the public has unquestioned confidence. To meet this responsibility fully and squarely, the family physician must not only be accurately and scientifically informed but he must also be willing to disseminate this information often to an audience who prefers to believe something entirely different. The popular concept frequently emanates from stylists, pseudoscientists, and moving picture celebrities, catching the public eye and interest, thereby making true education in these matters difficult. It is for these reasons that the physician is consulted only after damage is done, and illness produced.

We have all had occasion to see serious illnesses as a result of the so-called "Hollywood diet," an unscientific and harmful starvation program; we have undeniable evidence that certain obesity cures, sponsored by persons in the public eye, have ravished health; everyone is familiar with the disastrous results following the use of popular beauty aids; but in spite of this array of well known facts unscientific and popular fantasies hold the center of the stage. Of these perhaps none is more potent for personal harm than the now prevalent practice of suntanning.

A generation or so ago women wore sunbonnets and gloves when exposed to the rays of the sun. Men at sports or at work in the fields employed the highly protective sombrero type of hat, wore shirts and often gloves. Someone then discovered a vitamin effect in sunlight, and almost overnight we became a nation of nudists or semi-nudists in our effort to capture these beneficent

rays and supply our bodies with these little understood and therefore intriguing vitamins. A new health fad was born and stylists, eager to please, made every concession in beauty to produce garments to further this popular concept. Little effort seemed directed toward determining the body requirements for this vitamin effect, or the body tolerance to this therapeutic agent. No thought was given to the reaction of different constitutional types to this new and widely heralded panacea, nor to the remote or accumulative effects which might arise from its use. The result has been that with the practice in full swing, physicians are beginning to be cognizant of a need for research into these several matters having in mind the desirability of the definite limitation of suntanning to a constitutional need, or at least a restriction to the zone of physiologic tolerance.

It has been observed that burning from the sun's rays not only produces the signs of local irritation or inflammation, but may produce systemic signs of intoxication or poisoning. More recently it has been determined that these signs and symptoms resulted with less exposure in those persons whose skin lacked in natural pigment. It seems reasonable to assume that nature's original protection to the rays of the sun lies largely in pigmentation. If this is true then one may logically, and undoubtedly physiologically, deduce that the much admired and eagerly sought suntan is nature's protest against or adjustment to an agent which was either not required or acceptable in only moderate doses. Likewise, it may be reasoned that if the pigmentation is protective in character the "sun worshipper" whose excess exposure results in a marked tanning is defeating his avowed purpose since a skin so pigmented is almost impervious to the sun's rays. It seems entirely possible that such an individual may actually suffer as readily from vitamin deficiency as one who protects himself from the sun's rays by elaborate sun shades. Observations in the tropics support this view since children tanned to a beautiful mahogany hue suffer from rickets oftener than those seen in a city practice in this latitude. This may obviously be the result of other factors than the lack of the vitamin effect of the sun, a thought fully supported by researches which demonstrate the ineffectiveness of the sun's rays in the prevention of rickets when other determining factors are absent.

Summed up then it would seem that the present fad of suntanning is more cosmetic than therapeutic, and more popular than scientific; that, while it may possess virtue in some deficiency condi-



# Minutes of the Iowa State Medical Society Eighty-fifth Annual Session

April 29, 30 and May 1, 1936

## Wednesday Morning, April 29, 1936

The opening session of the Eighty-fifth Annual Session of the Iowa State Medical Society, held at the Savery Hotel, Des Moines, April 29-May 1, 1936, convened at nine-thirty o'clock, Dr. Thomas A. Burcham, president, presiding.

Dr. Clifford W. Losh, President of the Des Moines Academy of Medicine and Polk County Medical Society, extended greetings, and Dr. Raymond E. Peck, Davenport, Second Vice President of the Society, responded.

The scientific session began with a symposium on intracranial lesions, which included the following papers:

"The Clinical Manifestations of Intracranial Lesions," by Dr. William E. Ash of Council Bluffs.

"Certain Aspects and Fundamentals of Intracranial Surgery," by Dr. O. R. Hyndman of Iowa City.

"The Value of the Roentgenologic Examination in Intracranial Disease," by Dr. John D. Camp, Assistant Professor of Radiology, Mayo Foundation, University of Minnesota, Rochester, Minnesota.

"Ocular Changes Associated with Intracranial Lesions," by Dr. Cecil S. O'Brien of Iowa City.

Second Vice President Peck assumed the chair while Dr. Thomas A. Burcham of Des Moines delivered his presidential address.

The meeting adjourned at eleven-fifty o'clock.

## Thursday Morning, April 30, 1936

The Thursday morning session convened at eight forty-five o'clock, President Burcham presiding.

President Burcham introduced the medical guest speaker, Dr. S. Marx White, Professor of Medicine, University of Minnesota Medical School, Minneapolis, who presented a paper on "Essential Hypertension" and conducted a medical clinic illustrating cases of this type.

Dr. W. Wayne Babcock, Professor of Surgery and Clinical Surgery, Temple University School of Medicine, Philadelphia, the surgical guest speaker, was introduced. He presented a paper on "Breast

Tumors" and conducted a surgical clinic illustrating this type of case.

President Burcham introduced Dr. Arthur C. Christie, Professor of Clinical Radiology, Georgetown University Medical School, Washington, D. C., who presented a paper on "Modern Conception of Irradiation Therapy in Malignancy."

Dr. James C. Hill of Newton, First Vice President, assumed the chair and introduced the guest speaker of the Eye, Ear, Nose and Throat Section, Dr. Samuel J. Kopetzky, Professor of Otology, Poly-clinic Medical School, New York City. Dr. Kopetzky presented a paper on "Diseases of the Petrous Portion of the Temporal Bone from the Standpoint of the General Medical Man, the Neurologist, and the Otologist."

The meeting adjourned at twelve forty-five o'clock.

## Friday Morning, May 1, 1936

The Friday morning session convened at nine-twenty o'clock, First Vice President Hill presiding.

Dr. W. Wayne Babcock, Philadelphia, presented a paper on "Anesthesia."

President Burcham assumed the chair and introduced Dr. George W. Covey of Lincoln, Nebraska, President of the Nebraska State Medical Society, who brought greetings to the Iowa State Medical Society from Nebraska.

First Vice President Hill resumed the chair and the regular program continued.

Dr. S. Marx White of Minneapolis presented a paper on "Paroxysmal Tachycardia" and conducted a medical clinic.

Dr. Arthur C. Christie of Washington, D. C., spoke on "Medical Economics."

President Burcham resumed the chair and called for the report of the House of Delegates which was given by Secretary Parker.

President-elect Edward M. Myers of Boone was introduced and expressed to the Society his appreciation of the honor which had been bestowed on him.

Following the installation of Dr. Prince E. Sawyer of Sioux City, as President, the meeting adjourned at twelve-twenty o'clock.

## Section on Medicine

### Wednesday Afternoon, April 29, 1936

The opening session of the Section on Medicine, held in connection with the Eighty-fifth Annual Session of the Iowa State Medical Society, at the Savery Hotel, Des Moines, April 29-May 1, 1936, convened at one-thirty o'clock, Dr. Benjamin F. Wolverton of Cedar Rapids, Chairman of the Section, presiding.

The following papers were presented:

"Meningococcic Meningitis" by Dr. Archibald L. Hoyne of Chicago, Illinois; discussed by Drs. James E. Dyson of Des Moines and Frederick H. Lamb of Davenport.

"Three Steps to Heart Failure" by Dr. Elmer E. Kottke of Des Moines; discussed by Dr. Laurence E. Cooley of Dubuque.

"Diagnosis and Treatment of Simmonds' Disease" by Dr. James A. Greene of Iowa City; discussed by Dr. Robert N. Larimer of Sioux City.

"Allergic Manifestations as Seen in General Practice" by Dr. Elmer G. Senty of Davenport.

"Methods of Diagnosis and Treatment in Allergic Disease" by Dr. Julia Cole of Iowa City; discussed by Dr. Daniel J. Glomset of Des Moines.

"Rocky Mountain Fever: Report of Two Cases" by Dr. Fred Montz of Lowden; discussed by Dr. Sidney O. Levinson of Chicago, Illinois.

### Thursday Afternoon, April 30, 1936

The second session of the Section on Medicine was called to order at one-thirty o'clock, Thursday, April 30, Chairman Wolverton presiding.

The following papers were presented:

"Roentgenologic Diagnosis of Tumors of the Thorax" by Dr. David M. Earl of Iowa City; discussed by Dr. James V. Prouty of Cedar Rapids.

"X-ray Calcified Valve Leaflets in a Patient with Aortic Stenosis: Case Report" by Dr. Guy R. McCutchan of Council Bluffs; discussed by Dr. James F. Edwards of Ames.

"Modern Trends in Psychoneurosis" by Dr. William Malamud of Iowa City; discussed by Dr. Russell C. Doolittle of Des Moines.

"Roentgenologic Changes in Malacic Diseases" by Dr. John D. Camp of Rochester, Minnesota.

"Hypertonic Glucose Therapy in Cardiovascular Diseases" by Dr. Milo G. Meyer of Marshalltown; discussed by Dr. F. N. Cole of Iowa Falls.

Dr. Raymond M. Rice of Council Bluffs showed a moving picture film featuring the subject of "Education of the Diabetic."

## Section on Surgery

### Wednesday Afternoon, April 29, 1936

The opening session of the surgical section, held in connection with the Eighty-fifth Annual Session of the Iowa State Medical Society, at the Hotel Savery, Des Moines, April 29-May 1, 1936, was called to order at one-thirty o'clock, Dr. Earl Bush of Ames, Chairman of the Section, presiding.

The following papers were presented:

"Acute Intestinal Obstruction" by Dr. E. Burton Howell of Ottumwa; discussed by Dr. Charles S. Krause of Cedar Rapids.

"Surgery of the Gallbladder and Biliary Tract" by Dr. Thomas F. Thornton of Waterloo; discussed by Dr. Frank M. Keefe of Clinton.

"Gastro-enterostomy with Peptic Ulcers" by Dr. Carl J. Lohmann of Burlington; discussed by Dr. Paul A. White of Davenport.

"Fractures of the Vertebrae" by Dr. Verl A. Ruth of Des Moines; discussed by Dr. Karl R. Wernsdorff of Council Bluffs.

"Fractures About the Knee Joint" by Dr. Douglas N. Gibson of Des Moines; discussed by Dr. Arch F. O'Donoghue of Sioux City.

"Fractures of the Lower Leg" by Dr. Burton R. Weston of Mason City; discussed by Dr. Fred L. Knowles of Fort Dodge.

### Thursday Afternoon, April 30, 1936

The second session of the surgical section convened at one-thirty o'clock, Chairman Bush presiding. It was opened with a symposium on the prostate gland, which included the following papers:

"Diagnosis" by Dr. Gerald V. Caughlan of Council Bluffs; "Operative Technic" by Dr. William L. Donnelly of Davenport; "Postoperative Treatment, Sequelae and Statistics" by Dr. Clifford W. Losh of Des Moines. The symposium was discussed by Drs. Julian M. Bruner of Des Moines and Lawrence E. Pierson of Sioux City.

The following papers were presented:

"Uterine Carcinoma" by Dr. Howard D. Gray of Des Moines; discussed by Dr. Lafe H. Fritz of Dubuque.

"Obstetric Operative Procedures" by Dr. Wm. E. Brown of Cedar Rapids; discussed by Dr. Everett D. Plass of Iowa City.

"Methods of Protecting the Perineum During Labor and Repairing of the Perineum and Lacerations" by Dr. Roy E. Crowder of Sioux City; discussed by Dr. Lester C. Kern of Waverly.



## Section on Ophthalmology, Otology and Rhinolaryngology

Wednesday Afternoon, April 29, 1936

The opening session of the Section on Ophthalmology, Otology and Rhinolaryngology, held in connection with the Eighty-fifth Annual Session of the Iowa State Medical Society, at the Savery Hotel, Des Moines, April 29-May 1, 1936, convened at one-thirty o'clock, Dr. Cecil C. Jones of Des Moines, Chairman of the Section, presiding.

The following papers were presented:

"Bacteriologic Differentiation of the More Common Forms of Conjunctivitis," by Dr. Phillips Thygeson of Iowa City; discussed by Drs. Elmer P. Weih of Clinton, and Phillips Thygeson of Iowa City.

"The Refinements of Refraction," by Dr. Frank W. Dean of Council Bluffs; discussed by Drs. William F. Boiler of Iowa City, Cecil S. O'Brien of Iowa City, Gordon F. Harkness of Davenport, George C. Albright of Iowa City, Wayne J. Foster of Cedar Rapids, Harold J. McCoy of Des Moines, and Frank W. Dean of Council Bluffs.

"Orthoptic Exercises, Their Indications and Results," by Dr. Ralph E. Russell of Waterloo; discussed by Dr. James H. Allen of Iowa City.

Thursday Afternoon, April 30, 1936

The second session of the Section on Ophthalmology, Otology and Rhinolaryngology was called to

order at one-thirty o'clock, Thursday, April 30, Chairman Jones presiding.

The following papers were presented:

"Applied Anatomy of Deep Suppurations of the Neck," by Dr. Eugene W. Scheldrup of Iowa City; discussed by Dr. Gordon F. Harkness of Davenport.

"Chronic Mastoiditis and Its Therapy," by Dr. Samuel J. Kopetzky of New York City, guest speaker of the Section; discussed by Drs. Dean M. Lierle of Iowa City, Harold J. McCoy of Des Moines, J. A. Thorson of Dubuque, Wayne J. Foster of Cedar Rapids, and Samuel J. Kopetzky of New York City.

"Systemic Management of Children with Acute Infections of the Ear, Nose and Throat," prepared by Dr. Dennis H. Kelly of Des Moines, and read by Dr. Lee Forrest Hill, his associate; discussed by Drs. Jack V. Treynor of Council Bluffs, James A. Downing of Des Moines, and Dennis H. Kelly of Des Moines.

"Speech Defects, Their Cause and Management," by Dr. Wendell Johnson of Iowa City; discussed by Drs. Harry H. Lamb of Davenport, Gordon F. Harkness of Davenport, J. A. Thorson of Dubuque, F. P. Quinn of Dubuque, Eric N. Brown of Marengo, and Wendell Johnson of Iowa City.

"The Full Frequency Audiometer," by Dr. James E. Reeder of Sioux City.

Upon motion regularly made and seconded, Dr. Wayne J. Foster of Cedar Rapids was elected Chairman of the Section for the ensuing year.

The meeting adjourned at five-fifteen o'clock.

## Transactions House of Delegates Iowa State Medical Society, Eighty-fifth Annual Session April 29, 30 and May 1, 1936

The first session of the House of Delegates, held in connection with the Eighty-fifth Annual Session of the Iowa State Medical Society, at the Savery Hotel, Des Moines, April 29-May 1, 1936, convened at three forty-five o'clock, President Thomas A. Burcham presiding.

The following delegates and alternate delegates represented their respective county societies:

### Delegates

Allamakee.....J. W. Thornton  
Appanoose.....J. C. Donahue  
Audubon.....L. E. Jensen  
Black Hawk.....J. E. Brinkman  
Boone.....A. B. Deering  
Bremer.....L. C. Kern  
Buchanan.....H. A. Householder  
Buena Vista.....M. A. Armstrong  
Calhoun.....P. W. Van Metre

Carroll.....O. P. Morganthaler  
Cass.....Earl C. Montgomery  
Cedar.....W. N. Moore  
Cerro Gordo.....E. L. Wurtzer  
Clarke.....C. R. Harken  
Clay.....J. M. Sokol  
Clayton.....A. E. Beyer  
Dallas-Guthrie.....E. L. Bower  
Davis.....C. H. Cronk  
Decatur.....G. P. Reed  
Delaware.....L. C. Garling  
Des Moines.....J. T. Hanna  
Dickinson.....J. J. Buchanan  
Dubuque.....F. P. McNamara  
Emmet.....J. B. Knipe  
Greene.....Geo. W. Franklin  
Hancock-Winnebagos.....T. J. Irish  
Hardin.....J. A. W. Burgess  
Howard.....Geo. Kessel  
Ida.....C. L. Putnam  
Jackson.....J. C. Dennison

Jasper.....	H. P. Engle
Johnson.....	Geo. C. Albright
Jones.....	H. F. Dolan
Kossuth.....	C. H. Cretzmeyer
Lee.....	B. J. Dierker
Linn.....	Thomas Suchomel
	J. K. Von Lackum
Lucas.....	R. A. Hills
Lyon.....	K. Sporre
Madison.....	I. K. Sayre
Mahaska.....	E. M. Williams
Marion.....	F. M. Roberts
Marshall.....	A. D. Woods
Mills.....	Dean W. Harman
Monona.....	E. C. Junger
Muscatine.....	L. C. Howell
O'Brien.....	W. R. Brock
Palo Alto.....	J. F. Givens
Pocahontas.....	W. W. Beam
Polk.....	W. E. Baker
	James A. Downing
	Fred Moore
	W. E. Sanders
Pottawattamie.....	F. E. Bellinger
Poweshiek.....	E. B. Williams
Scott.....	W. C. Goenne
Shelby.....	E. A. Moore
Story.....	Bush Houston
Tama.....	A. A. Pace
Union.....	A. Fred Watts
Van Buren.....	E. E. Sherman
Warren.....	John Loosbrock
Wayne.....	B. S. Walker
Webster.....	J. H. Bruce
Winneshiek.....	J. J. Daly
Worth.....	S. S. Westly
Wright.....	R. D. Bernard

Alternate Delegates

Butler.....	J. G. Evans
Harrison.....	E. J. Cole
Henry.....	S. W. Huston
Jefferson.....	J. S. Gaumer
Keokuk.....	C. L. Heald
Montgomery.....	F. W. Smith
Scott.....	Raymond E. Peck
Wapello.....	E. B. Howell
Woodbury.....	John H. Henkin
	Chas. P. McHugh

Officers

President.....	Thomas A. Burcham
Secretary.....	Robert L. Parker
Treasurer.....	Harold J. McCoy
President-Elect.....	Prince E. Sawyer
Trustee.....	John I. Marker
Trustee.....	Oliver J. Fay
Trustee.....	Edward M. Myers
Councilor— 1st District.....	F. A. Hennessy
3rd District.....	F. P. Winkler
4th District.....	James E. Reeder
6th District.....	C. W. Ellyson
7th District.....	A. W. Erskine
8th District.....	C. A. Boice
9th District.....	Harold A. Spilman
10th District.....	James G. Macrae
11th District.....	M. C. Hennessy

President Burcham: I will now call the House of Delegates to order.

The first order of business is the approval of the minutes of the Friday morning session of the 1935 meeting.

Dr. F. E. Bellinger: Mr. President, I *move* that the minutes be approved as published in the July, 1935, edition of the IOWA STATE MEDICAL JOURNAL.

President Burcham: You have heard the question. Is there any discussion or objection?

*The question was put to a vote and carried.*

President Burcham: The next order of business is the report of the Secretary.

Secretary Parker: Mr. President, before presenting my report, I wish to *move* that all reports as published in the Handbook be received by this body.

*The motion was put to a vote and carried.*

Reports of Officers

REPORT OF THE SECRETARY

To the members of the House of Delegates of the Iowa State Medical Society:

The following report for the year 1935 is respectfully submitted:

Membership

The membership as set out in the tabulated report† may be summarized as follows:

*Active Members, 1935.....	2,297
Delinquent Members .....	44
Eligible Non-members .....	329
Physicians retired or not in practice.....	131
Ineligible Non-members .....	129

Each county society secretary should examine

†See next page.  
\*Life members are listed as active members.

carefully the tabulated report, and if the report does not check with his records, this office should be notified.

100 Per Cent County Medical Societies

Adair	Floyd	Marion	Sac
Adams	Henry	Marshall	Scott
Boone	Howard	Osceola	Tama
Calhoun	Ida	Poweshiek	Van Buren
Emmet	Madison	Ringgold	Washington
		Winneshiek	

This year we have tried to contact new doctors in each county by use of the following return post card, in order that they may become identified with organized medicine. We hope that this move will be helpful to both the doctor and the county society secretary:



It has been reported to our office that  
 ....., M.D., has  
 recently moved to.....in your  
 county from.....where he (was)  
 (was not) a member. We shall appreciate it if  
 you will verify this report and also let us know  
 if he has applied to your county society for  
 membership. If he has not, will you please note  
 his membership classification in your county?

Robert L. Parker, M.D., Secretary,  
 Iowa State Medical Society

Dear Dr. Parker:

....., M.D., has  
 recently located at....., in our  
 county. He (has) (has not) applied for mem-  
 bership in our county society. His membership  
 classification is: (eligible non-member; ineligible  
 non-member; not in practice).

.....Secretary  
 .....County Medical Society

It is the desire of this office that the proposed  
 amendment to the constitution included in the report  
 of the Committee on Constitution and By-laws re-  
 garding life membership be enacted. It would clarify  
 the requirements and methods of securing this  
 recognition by the Iowa State Medical Society.

It has come to our attention that in some counties,  
 doctors have been elected to membership, retained  
 as members, or even served as officers of the society  
 by the payment of county society dues only. This is  
 not only unjust, but entirely unconstitutional, and if  
 Sections 1 and 2, Chapter IX of the by-laws were  
 enforced, delegates from such county societies could  
 be denied a seat in the House of Delegates. Election  
 to membership in the county medical society is not  
 an election to a medical club, but to organized  
 medicine—your county society, your state society and  
 the American Medical Association.

Prior to 1903, when the Iowa State Medical So-  
 ciety was reorganized under the plan of the Amer-  
 ican Medical Association, a doctor petitioned the  
 Iowa State Medical Society for membership, and  
 was voted upon by that body. Your own president-  
 elect was voted a member of the Iowa State Medical  
 Society at its last meeting before this reorganization.

#### Membership Roster

If supported by the House of Delegates, this office  
 would like to publish in the July Journal, a roster of  
 its members. With the transactions of the House  
 which are always published at that time, it would  
 make a valuable number for reference, and would  
 be comparatively inexpensive. Since few doctors  
 in the state have access to the Directory of the  
 American Medical Association, it was thought that  
 this roster would be very useful.

#### County Society Contracts

The Iowa State Medical Society has an outstanding  
 name among other state societies because of the  
 Iowa plan for the care of the indigent. This office  
 strongly urges that every county consider some  
 form of contract with the Board of Supervisors for  
 the care of the indigent sick just as soon as the  
 federal and state funds for medical care have been  
 withdrawn. The Iowa plan for emergency medical  
 care was much better than similar plans in other  
 states, but was not satisfactory to the profession in  
 general. We believe that this experiment has further  
 convinced us that medical care should be directed by  
 organized medicine. It would be of great help to us  
 if each county society which makes a contract would  
 send a copy to the state society office for our files.  
 We strongly urge this because county societies from  
 all parts of the country make requests for sugges-  
 tions in preparing contracts. This file would also be  
 helpful in suggesting further improvement in our  
 own county society contracts.

#### Secretaries' Conference

The question of a mid-season conference of county  
 society secretaries has arisen several times. Should  
 it be held as a central meeting, attended by the  
 secretaries from all counties of the state, or as  
 district meetings? I personally believe much more  
 good would result in district meetings. The nine  
 secretaries in each district could meet at a central  
 point, become better acquainted and discuss local  
 problems more frankly. Such meetings could be  
 held at the time of district meetings called for other  
 purposes. I will be glad to meet with such groups  
 at any time and discuss their problems with them.

#### Correspondence

Due to the efficient personnel and the equipment in  
 the central office, we are becoming consistently bet-  
 ter able to serve county medical societies and in-  
 dividual doctors over the state. Numerous county  
 societies have requested the central office to address  
 their programs, etc., on the addressograph, through  
 which is maintained the mailing list of members of  
 all county societies. We are glad to be of service  
 in this way. The correspondence with individual  
 doctors is appreciated. Information is requested on  
 many subjects. We either answer the questions, or  
 refer them to the proper source of information. The  
 central office is maintained by the Iowa State  
 Medical Society, and its personnel is glad to be of  
 all possible assistance to the profession of the state.  
 When in Des Moines, feel free to visit the office.  
 Your suggestions are welcomed and of value to us.

#### Financial Report

The financial report required of the secretary by  
 the constitution and by-laws is included in the audit  
 of the certified public accountant employed by the

1935 MEMBERSHIP RECORD

County	1935 Membership	Delinquent Members	Eligible Non-Members	Ineligible Non-Members	Not in Practice or Retired	Percentage of Eligible Physicians Who Are Members
Adair	8				1	100
Adams	9					100
Allamakee	5	1	6	2	1	42
Appanoose	18		3			86
Audubon	9		1			90
Benton	17	1	6		1	71
Black Hawk	64		1	6	4	98
Boone	22				3	100
Bremer	16		4	1		80
Buchanan	16		4	2	1	80
Buena Vista	16		4		1	80
Butler	10		4	2	2	71
Calhoun	21				3	100
Carroll	24		4		3	86
Cass	20	1	2	4	1	87
Cedar	10		8		1	56
Cerro Gordo	46		1	2		98
Cherokee	16		8		1	67
Chickasaw	14		2	1	1	88
Clarke	8		1			89
Clay	10		5	2		67
Clayton	14		9		1	61
Clinton	37	3	11	2	2	73
Crawford	12		3	2		80
Dallas-Guthrie	34		11	1	1	78
Davis	11		3			79
Decatur	9		5	1		64
Delaware	12		5			71
Des Moines	32	3	9	2		73
Dickinson	12		1			92
Dubuque	56		5	13	1	92
Emmet	13					100
Fayette	18	1	12	1	1	58
Floyd	15			3		100
Franklin	9		3			75
Fremont	10	2	2		1	71
Greene	12	3	5	1		60
Grundy	9		2			82
Hamilton	17	3	2		4	77
Hancock-Winnebago	20		4		2	83
Hardin	24		1		4	96
Harrison	14	3	6			61
Henry	24				1	100
Howard	9				1	100
Humboldt	7		4			64
Ida	11			1	2	100
Iowa	12		3		2	80
Jackson	16		1	1	1	94
Jasper	32	4	1		1	86
Jefferson	17		3	1	1	85
Johnson	121	2	8		6	92
Jones	12		2	2		86
Keokuk	12	1	4	5		71
Kossuth	16		5			76
Lee	42	2	4	4	1	88
Linn	101		6	6	8	94
Louisa	4	1	7	1	3	33
Lucas	12		1		1	92
Lyon	10		1	1		91
Madison	9				2	100
Mahaska	22		2	2	4	92
Marion	20			1	1	100
Marshall	40			1	3	100
Mills	16		1	1	2	94
Mitchell	8	1	7			50
Monona	12		2	1	1	86
Monroe	7		5			58
Montgomery	12		4		1	75
Muscatine	24	1	1	2	2	92
O'Brien	16	1	3	1		80
Osceola	8					100
Page	20		8	2	1	71
Palo Alto	12	1			1	92
Plymouth	12		12	1	1	50
Pocahontas	12		5	1	1	71
Polk	220	2	24	13	9	89
Pottawattamie	56	1	8	4	3	81
Poweshiek	22				1	100
Ringgold	10				1	100
Sac	20					100
Scott	94			12	1	100
Shelby	9		1		2	90
Sioux	16		5		1	76
Story	33		1	2	3	97
Tama	23			1	2	100
Taylor	9	1	3			69
Union	16	1	2	1	3	84
Van Buren	15					100
Wapello	39	1	3	3	4	91
Warren	12		1	1	1	92
Washington	21				2	100
Wayne	9	1	3		1	69
Webster	37	1	3		1	90
Winneshiek	15			2		100
Woodbury	116	1	10	6	5	91
Worth	7		1			88
Wright	21		1	1	1	95
Total	2,297	44	329	129	131	86%



Board of Trustees. To this report you are respectfully referred.

In presenting this report for 1935, which is the close of my second term as secretary, I wish to express my appreciation for the kindly support of the membership and the constructive criticism which is so necessary as we endeavor to serve one of the outstanding state medical societies of organized medicine.

Robert L. Parker, Secretary

Secretary Parker: In making the Secretary's report for 1935, I hope that every delegate has read it as published in the Handbook. I wish briefly to call your attention to some few facts regarding the membership of 1935 as compared with the membership of 1934. In 1934 we had 2,211 paid-up members; in 1935 we had 2,297. In 1934 we had 115 delinquent members; in 1935 we had only 44 delinquent members. In 1934 we had 363 eligible non-members; during 1935 we only had 329 eligible non-members. We had 15 one hundred per cent counties in 1934; we had 21 counties in which every doctor eligible for membership was a member of his county medical society in 1935.

I might say that today we went over the 2,100 mark for this year's paid-up membership. I will not read the entire report, but I would like to call your attention to the item on membership roster. "If supported by the House of Delegates, this office would like to publish in the July JOURNAL, a roster of its members. With the transactions of the House which are always published at that time, it would make a valuable number for reference."

I might add that the Trustees have discussed this question and considered that it should be brought before the House of Delegates for their action, because it might set a precedent, and I feel that it would be a valuable precedent to set. Not every member of the State Medical Society has access to the American Medical Directory, and a roster of our membership could be published in the July JOURNAL at comparatively little expense.

Mr. President, in order to bring that matter before this body, I move the adoption of my report including this recommendation for a membership roster.

President Burcham: You have heard the motion that this report be adopted and the recommendation concurred in. That means the State Society would publish a roster of the paid-up members of the Society in the July Journal. Is there any discussion? Do any of the members of the Board of Trustees want to discuss this matter?

Dr. Marker: I would like to know what the additional cost would be.

Secretary Parker: If it were published separately, as this sample which is the Nebraska roster, 2,800 copies of 32 pages would cost \$325, and 2,800

copies containing 40 pages would cost an additional \$48.

President Burcham: How often would the roster be published?

Secretary Parker: Once a year. I think we can publish it in our July JOURNAL much cheaper than we could publish it as an individual roster. Then, with that July JOURNAL you would have reference to all the transactions, the different committees, your county society officers and the membership of the State Society. I, therefore, am much more in favor of publishing the roster in the July JOURNAL than as a separate roster.

*The question was called for, put to a vote and carried.*

President Burcham: The report of the Treasurer. Is Dr. McCoy here? (Absent) Will somebody make a motion that that report be accepted?

Dr. J. A. Downing: I so move.

*The motion was put to a vote and carried.*

## REPORT OF THE TREASURER

House of Delegates, Iowa State Medical Society:

For a detailed report of the financial transactions of the Society for the year 1935, I refer you to the auditor's report published herewith.

The income for 1935 represents an appreciable increase over the income of the preceding year. This increase was represented in many sources:

Dues .....	\$ 601.25
Advertising .....	1,584.28
Miscellaneous .....	24.45
Speakers Bureau .....	801.07
Annual Sessions .....	435.05

This increase in income made it possible, in spite of heavily increased expenditures necessitated by the increased activities of some of the committees, the Legislative Committee in particular, to end the year without the six thousand dollar deficit which had been anticipated.

The increase in expenditures for the year 1935 over that of 1934 was represented as follows:

Journal .....	\$ 884.77
Annual Sessions .....	365.07
Speakers Bureau .....	1,119.06
Legislative Committee .....	2,891.48

At the end of the fiscal year of 1935, the Treasurer's Account and the Savings Account were transferred from the Iowa-Des Moines National Bank to the Bankers Trust Company, where the Secretary's Account is kept. The bonds of the Society are in safe-keeping at the Iowa-Des Moines National Bank.

Harold J. McCoy, Treasurer

AUDITOR'S REPORT  
IOWA STATE MEDICAL SOCIETY  
DES MOINES, IOWA  
December 31, 1935

January 20, 1936.

Dr. Oliver J. Fay, Chairman,  
Board of Trustees, Iowa State Medical Society,  
Des Moines, Iowa.

Dear Sir:  
In accordance with your instructions, we have made  
an examination of the books and accounts of the

IOWA STATE MEDICAL SOCIETY  
DES MOINES, IOWA

for the year ended December 31, 1935, and now sub-  
mit our report thereon, together with the following  
statements:

- Exhibit "A"—Cash Account.
- Exhibit "B"—Income Account.
- Schedule No. 1—Expenditures (Treasurer).
- Schedule No. 2—Expenditures (Speakers Bureau).

The following comments are made on the principal  
items included in the above statements.

CASH ACCOUNT

A detailed cash account for the year ended Decem-  
ber 31, 1935, is given in Exhibit "A," showing the bal-  
ance on hand at the beginning of the year, receipts  
and disbursements during the year and balance in the  
respective bank accounts at the close of the year  
under review, a summary of which is as follows:  
Cash in Banks, December 31, 1934.....\$ 7,656.27  
Add. Receipts (As per Exhibit "A")..... 38,873.90

Total .....	\$46,530.17
Less: Expenditures (As per Exhibit "A").	37,728.12

Balance—Cash in Banks December 31, 1935 .....	\$ 8,802.05
--------------------------------------------------	-------------

Represented by:	
Iowa-Des Moines National Bank.....	\$ 1,437.02
Bankers Trust Company.....	146.96
Des Moines Savings Bank and Trust Company .....	7,218.07

Total .....	\$ 8,802.05
-------------	-------------

All receipts as herein shown were traced to the re-  
spective depository accounts, and all disbursements  
therefrom were supported by cancelled checks as set  
out by Schedules No. 1 and 2, respectively. The bal-  
ance in the various bank accounts were satisfactorily  
reconciled with the bank statements as at December  
31, 1935, and the balance as shown thereon verified by  
direct communication with the banks.

Schedules No. 1 and 2, respectively, set out in de-  
tail expenditures for the year 1935, all of which were  
supported by checks drawn by the Treasurer upon  
vouchers issued by the Secretary. Attached to and  
supporting the vouchers were invoices from the vari-  
ous creditors, properly approved by the Board of  
Trustees.

INCOME AND EXPENSE ACCOUNT  
AND

INVESTMENT ACCOUNT

Exhibit "B" sets out in detail the income, expense  
and investment account for the year ended December  
31, 1935, showing excess income over expenditures of

\$1,145.78 and a total of all funds on hand December  
31, 1935, amounting to \$43,403.58.

The following comparative statement of receipts  
and expenditures for the years 1935 and 1934 is sub-  
mitted:

	Year 1935	Year 1934	Increase or Decrease
INCOME:			
Receipts from Sec- retary .....	\$29,753.13	\$27,639.87	\$2,113.26
Speakers Bureau ..	5,151.97	4,350.90	801.07
Annual Session....	2,361.50	1,926.45	435.05
Interest on Bonds..	1,130.63	1,130.62	.01
Interest on Savings	117.84	192.00	74.16
Miscellaneous .....	358.83	35.70	323.13

TOTAL IN- COME FOR- WARDED ...	\$38,873.90	\$35,275.54	\$3,598.36
--------------------------------------	-------------	-------------	------------

EXPENDITURES:			
Schedule No. 1....	\$33,949.76	\$29,550.60	\$4,399.16
Schedule No. 2....	3,771.67	2,352.68	1,418.99
Bank Charges and Miscellaneous ...	6.69	119.78	113.09

TOTAL EXPEN- DITURES ...	\$37,728.12	\$32,023.06	\$5,705.06
-----------------------------	-------------	-------------	------------

EXCESS INCOME OVER EXPEN- DITURES .....	\$ 1,145.78	\$ 3,252.48	\$2,106.70
-----------------------------------------------	-------------	-------------	------------

Changes in the investment account during the  
year 1935 are shown by the following analysis:

Net Income for the year 1935 as per Ex- hibit "B" .....	\$ 1,145.78
Add: Cash in Banks, beginning of the year	7,656.27
Treasury Bonds on hand, beginning of the year .....	34,601.53
Total Funds at December 31, 1935.....	\$43,403.58

Represented by:	
Cash	
Iowa-Des Moines National Bank .....	\$ 1,437.02
Bankers Trust Company...	146.96
Des Moines Savings Bank.	7,218.07

	\$ 8,802.05
Treasury Bonds:	
3%, 1955, Face Value.....	\$ 9,000.00
3% %, 1943, Face Value...	25,500.00
Premium paid when acquired	101.53
Total, as above.....	\$43,403.58

The Treasury Bonds as shown above are in safe-  
keeping with the Iowa-Des Moines National Bank  
and Trust Company, and were verified by direct com-  
munication with the bank.

In conclusion we wish to express our appreciation  
of the courtesies extended to us during the course  
of our examination, and we will be glad to supply  
any additional information desired herein.

Respectfully submitted,  
W. WIDDUP & COMPANY,  
Certified Public Accountants.  
Chartered Accountants.



Exhibit "A"  
Cash Account  
For the Year Ended December 31, 1935

	Total	Ia.-Des Moines Nat'l Bank & Trust Co.	Bankers Trust Company	Des Moines Savings Bank
CASH IN BANKS:				
December 31, 1934.....	\$ 7,656.27	\$ 180.07	\$ 375.97	\$ 7,100.23
RECEIPTS:				
Dues .....	\$21,785.75	\$ 0...	\$21,785.75	\$ 0...
Advertising .....	6,886.98	0...	6,886.98	0...
Reprints .....	969.94	0...	969.94	0...
Miscellaneous .....	110.46	0...	110.46	0...
Total.....	\$29,753.13	\$ 0...	\$29,753.13	\$ 0...
Speakers Bureau:				
Fees .....	\$ 5,120.17	\$ 0...	\$ 5,120.17	\$ 0...
Travel Expense .....	31.80	0...	31.80	0...
Total .....	\$ 5,151.97	\$ 0...	\$ 5,151.97	\$ 0...
Annual Session .....	\$ 2,361.50	\$ 0...	\$ 2,361.50	\$ 0...
Interest, Treasury Bonds.....	1,130.63	1,130.63	0...	0...
Returned Check Payments.....	7.50	0...	7.50	0...
Refund Legislative Committee.....	351.33	351.33	0...	0...
Interest Savings Account.....	117.84	0...	0...	117.84
TOTAL ALL RECEIPTS.....	\$38,873.90	\$ 1,481.96	\$37,274.10	\$ 117.84
TOTAL RECEIPTS AND BEGINNING BALANCE....	\$46,530.17	\$ 1,662.03	\$37,650.07	\$ 7,218.07
TRANSFERS .....	\$ 0...	\$37,500.00	\$37,500.00	0...
BALANCE AFTER TRANSFERS.....	\$46,530.17	\$39,162.03	\$ 150.07	\$ 7,218.07
EXPENDITURES:				
Expense (Schedule No. 1).....	\$33,949.76	\$33,949.76	\$ 0...	\$ 0...
Expense (Schedule No. 2).....	3,771.67	3,771.67	0...	0...
Bank Charges .....	6.69	3.58	3.11	0...
TOTAL EXPENDITURES .....	\$37,728.12	\$37,725.01	\$ 3.11	\$ 0...
BALANCE CASH IN BANKS December 31, 1935.....	\$ 8,802.05	\$ 1,437.02	\$ 146.96	\$ 7,218.07

Exhibit "B"  
Income and Expense Account Including Investment  
For the Year Ended December 31, 1935

INCOME:		EXCESS OF INCOME OVER EXPENSE FOR THE YEAR ENDED DECEMBER 31, 1935 .....	\$ 1,145.78
Received from Secretary:		INVESTMENT ACCOUNT:	
Dues .....	\$21,785.75	Cash in Banks and Treasury Bonds on hand at December 31, 1934:	
Advertising .....	6,886.98	Cash in Banks.....	\$ 7,656.27
Reprints .....	969.94	Treasury Bonds (Par \$34,- 500.00) Cost .....	34,601.53 42,257.80
Miscellaneous .....	110.46		
Total .....	\$29,753.13	TOTAL CASH IN BANKS AND TREAS- URY BONDS ON HAND DECEMBER 31, 1935 .....	\$43,403.58
Speakers Bureau:		REPRESENTED BY:	
Fees .....	\$ 5,120.17	Treasury Bonds (Par \$34,500.- 00), Cost .....	\$34,601.53
Travel Expense .....	31.80 5,151.97	Iowa - Des Moines National Bank .....	1,437.02
Annual Session .....	2,361.50	Bankers Trust Company .....	146.96
Interest from Bonds .....	1,130.63	Des Moines Savings Bank & Trust Co. ....	7,218.07
Refund Legislative Committee.....	351.33		
Returned Check Payment.....	7.50	TOTAL .....	\$43,403.58
Interest Savings Account.....	117.84		
TOTAL INCOME .....	\$38,873.90		
EXPENSES:			
Expenditures, Schedule No. 1.....	\$33,949.76		
Expenditures, Schedule No. 2.....	3,771.67		
Bank Charges .....	6.69 37,728.12		

Schedule No. 1  
EXPENDITURES  
For the Year Ended December 31, 1935

Date	Check	Order		In Payment of	Distribution	Amount
1935	No.	No.	Drawn in Favor of			
1-4	3025	4972	Petty Cash	Legislative Committee Postage	Legislative Committee	\$ 20.00
1-17	3026	4973	National Carloading Corp.	Freight on Addressograph	Rent and Office Supplies	5.50
1-23	3028	4975	Iowa Press Clipping Bureau	December Clippings	Journal Ptg. and Engraving	14.52
1-23	3029	4976	Bill's Floral Company	Bendixen's Flowers	Administrative, Misc.	10.20
1-23	3030	4977	Raymond E. Peck	Travel Expense—Com. Meeting	Annual Session	9.50
1-23	3031	4978	Western Letter Service	600 Letters	Legislative Committee	5.75
1-23	3032	4979	Petty Cash	Office Postage	Rent and Office Supplies	10.00
1-23	3033	4980	Robert L. Parker	January Salary	General Salaries	50.00
1-23	3034	4981	Grace J. McDonald	January Salary	General Salaries	85.00
1-23	3036	4982	R. R. Simmons	January Salary	Journal Ptg. and Engraving	100.00
1-23	3035	4983	Mary McCord	January Salary	Speakers Bureau	100.00
1-23	3037	4984	Virginia Stewart	January Salary	General Salaries	35.00
1-23	3038	4985	Dorothy Nelson	January Salary	Journal Ptg. and Engraving	115.00
					General Salaries	150.00
1-23	3039	4986	N. W. Bell Telephone Co.	January Service and December Tolls	Administrative, Misc.	5.10
					Rent and Office Supplies	15.80
					County Society Services	3.55
					Legislative Committee	67.65
					Med. Economics Comm.	.90
					Journal Ptg. and Engraving	3.05
					Speakers Bureau	15.39
1-23	3040	4987	Iowa-Des Moines National Bank	Safekeeping Charges	Administrative, Misc.	17.25
1-23	3041	4988	Bankers Building Corp.	January Rent	Rent and Office Supplies	90.00
1-23	3042	4989	Dess Powers	Flowers for Dr. Young	Administrative, Misc.	10.77
1-23	3043	4990	Yellow Cab Company	Traveling Expense	Legislative Committee	11.20
1-23	3044	4991	Hotel Ft. Des Moines	Dinners, Dec. 9, 1934	Legislative Committee	36.83
1-23	3045	4992	Central Engraving Co.	Halftones	Annual Session	17.64
1-23	3046	4993	F. P. McNamara	Traveling Expense	Journal Ptg. and Engraving	48.05
1-23	3047	4994	Chas. D. O'Donnell	House and Senate Bills, Journals	Legislative Committee	18.30
1-23	3048	4995	L. R. Woodward	Councilor Expense	Legislative Committee	7.00
					Council	8.66
1-23	3049	4996	Gordon F. Harkness	Phone Call and Traveling Expense	Administrative Misc.	2.24
					Legislative Committee	8.40
					Other Committees	4.53
1-23	3050	4997	Freeburn and Baker	Abstracts	Legislative Committee	13.00
1-23	3051	4998	Dutcher, Walker & Ries	Attorney Fees	Medico-Legal Committee	88.66
					Rent and Office Supplies	34.54
1-23	3052	4999	Koch Brothers	Stationery, Printing and Office Sup.	Stationery and Printing	102.66
					Legislative Committee	47.96
					Speakers Bureau	22.38
					Stationery and Printing	78.32
1-23	3053	5000	Wallace-Homestead Co.	Printing	Journal Ptg. and Engraving	536.80
					Reprints	32.72
					Administrative, Misc.	3.75
1-23	3054	5001	Western Union Telegraph Co.	Telegrams, Nov. and Dec., 1934	Legislative Committee	52.74
					Speakers Bureau	2.09
1-31	3058	5005	Gerald O. Blake	January Salary	Legislative Committee	100.00
2-5	3059	5006	Fred Moore	Committee Activities	Legislative Committee	2,000.00
2-7	3060	5007	Chas. B. Pinkham	Photostatic Copies, letters	Legislative Committee	.97
2-18	3068	5015	R. N. Meng	Advertising Commission	Journal Ptg. and Engraving	4.80
2-18	3069	5016	Postmaster	Mailing to entire membership	Administrative Misc.	22.33
2-26	3070	5024	Iowa Press Clipping Bureau	January Clippings	Journal Ptg. and Engraving	16.80
2-26	3071	5025	D. M. Clean Towel Service	Towel Service, three months	Rent and Office Supplies	3.75
2-26	3072	5026	Cash	Office Postage	Rent and Office Supplies	10.00
2-26	3073	5027	Robert L. Parker	February Salary	General Salaries	75.00
2-26	3074	5028	Grace J. McDonald	February Salary	General Salaries	85.00
2-26	3075	5029	R. R. Simmons	February Salary	Journal Ptg. and Engraving	100.00
2-26	3076	5030	Mary McCord	February Salary	Speakers Bureau	100.00
					General Salaries	35.00
2-26	3077	5031	Virginia Stewart	February Salary	Journal Ptg. and Engraving	115.00
					General Salaries	150.00
2-26	3078	5032	Dorothy Nelson	February Salary	Rent and Office Supplies	90.00
2-26	3079	5033	Bankers Bldg. Corp.	February Rent	Administrative, Misc.	1.65
					Rent and Office Supplies	15.07
					County Society Services	1.70
					Council	.80
2-26	3080	5034	N. W. Bell Telephone Co.	February Service and January Tolls	Legislative Committee	33.35
					Med. Economics Committee	4.40
					Other Committees	6.00
					Annual Session	3.45
					Speakers Bureau	7.50
2-26	3081	5035	Robert L. Parker	Traveling and Miscellaneous Exp.	Administrative, Misc.	22.75
2-26	3082	5036	John I. Marker	Jan. and Feb. Trustee Meetings	Trustees	37.15
2-26	3083	5037	James E. Reeder	Jan. and Feb. Council Meetings	Council	27.22
					Legislative Committee	4.70
2-26	3084	5038	H. A. Spilman	Jan. and Feb. Council Meetings	Council	20.00
2-26	3085	5039	L. R. Woodward	Jan. and Feb. Council Meetings	Council	31.90
2-26	3086	5040	E. M. Myers	Jan. and Feb. Trustee Meetings	Trustees	9.45
2-26	3087	5041	E. C. McClure	Traveling Expense Finance Com.	Other Committees	6.60
2-26	3088	5042	A. S. Bowers	Traveling Expense Finance Com.	Other Committees	8.50
2-26	3089	5043	L. L. Carr	Traveling Expense Finance Com.	Other Committees	23.00
2-26	3090	5044	W. R. Brock	Traveling Exp. Const. and By-Laws	Other Committees	28.00
2-26	3091	5045	John H. Henkin	Traveling Exp. Const. and By-Laws	Other Committees	20.00
2-26	3092	5046	W. A. Sternberg	Traveling Exp. Const. and By-Laws	Other Committees	16.75
2-26	3093	5047	C. W. Ellyson	Council Meeting Expense	Council	14.97
2-26	3094	5048	R. H. McBride	Committee on Child Health	Other Committees	19.50
2-26	3095	5049	Garr Brothers	Stencils	Rent and Office Supplies	5.20
2-26	3096	5050	C. & N. W. Ry. Co.	Round trip to Chicago (Dr. Parker)	Administrative, Misc.	19.35
2-26	3097	5051	American Medical Ass'n	Printing	Legislative Committee	3.00

Amount Forward..... \$ 5,419.01



## Schedule No. 1—Continued

Date 1935	Check No.	Order No.	Drawn in Favor of	In Payment of Amount Brought Forward	Distribution	Amount
						\$ 5,419.01
2-26	3098	5052	D. M. Slide Co.	Lantern Slides	County Society Services	.85
2-26	3099	5053	Smith & Smith Printers	Supplies (Envelopes)	Rent and Office Supplies	3.45
2-26	3100	5054	Hotel Ft. Des Moines	Child Health Committee Expense	Other Committees	5.19
2-26	3101	5055	Addressograph Co.	Addressograph Plates	Rent and Office Supplies	5.11
2-26	3102	5056	Zaisers	Office Supplies	Administrative, Misc.	8.19
					Administrative, Misc.	1.11
2-26	3103	5057	Western Union	January Services	Legislative Committee	1.09
					Other Committees	.79
					Annual Session	1.06
2-26	3104	5058	Central Engraving	Halftones for Journal	Journal Ptg. and Engraving	88.00
					Rent and Office Supplies	25.10
2-26	3105	5059	Koch Brothers	Supplies	Legislative Committee	1.84
					Speakers Bureau	13.11
2-26	3106	5060	W. Widdup and Co.	Audit	Administrative, Misc.	100.00
2-26	3107	5061	E. D. Plass	Child Health Committee Expense	Other Committees	12.35
2-26	3108	5062	M. C. Hennessy	Council Meeting—11th District	Council	45.05
					Administrative, Misc.	3.07
					County Society Services	8.60
					Trustees	16.57
2-26	3109	5063	Gordon F. Harkness	Misc. Trav. Expense and Telephone	Council	16.58
					Medico-Legal Committee	.66
					Legislative Committee	7.33
					Med. Economics Com.	.83
					Annual Session	15.62
2-26	3110	5064	Wallace-Homestead Co.	Printing	Stationery and Printing	173.92
					Journal Ptg. and Engraving	584.64
					Reprints	126.38
2-26	3111	5065	Des Moines Club	Lunches	Legislative Committee	1.38
2-26	3112	5066	H. J. Burgstahler	Legislative Conference	Legislative Committee	1.80
3-14	3123	5070	Postmaster	Journal Postage	Journal Ptg. and Engraving	100.00
3-21	3132	5079	R. N. Meng	Advertising Commission	Journal Ptg. and Engraving	52.05
3-29	3134	5081	Iowa Press Clipping Bureau	February Clippings	Journal Ptg. and Engraving	13.72
3-29	3135	5082	Des Moines Club	Legislative Committee Lunches	Legislative Committee	5.01
3-29	3136	5083	Cash	Office Postage	Rent and Office Supplies	10.00
3-29	3137	5084	Robert L. Parker	March Salary	General Salaries	75.00
3-29	3138	5085	Grace J. McDonald	March Salary	General Salaries	85.00
3-29	3139	5086	Mary McCord	March Salary	Speakers Bureau	100.00
3-29	3140	5087	R. R. Simmons	March Salary	Journal Ptg. and Engraving	100.00
					General Salaries	35.00
3-29	3141	5088	Virginia Stewart	March Salary	Journal Ptg. and Engraving	115.00
3-29	3142	5089	Dorothy Nelson	March Salary	General Salaries	150.00
					Administrative, Misc.	1.15
					Rent and Office Supplies	14.70
					County Society Services	3.50
3-29	3143	5090	N. W. Bell Telephone Co.	March Services and February Tolls	Council	3.45
					Legislative Committee	44.04
					Med. Economics Committee	.90
					Journal Ptg. and Engraving	3.25
					Speakers Bureau	6.30
3-29	3144	5091	Bankers Bldg. Corp.	March Rent	Rent and Office Supplies	90.00
					Administrative, Misc.	29.85
3-29	3145	5092	Robert L. Parker	Traveling Expenses	County Society Services	3.93
					Legislative Committee	3.92
3-29	3146	5093	H. L. Van Winkle	Council Meeting	Council	13.90
3-29	3147	5094	R. D. Bernard	Legislative Committee	Legislative Committee	142.21
3-29	3148	5095	James E. Reeder	Trip to Onawa	County Society Services	3.80
3-29	3149	5096	Des Moines Photo Copy	Slides	Legislative Committee	2.05
3-29	3150	5097	A. W. Erskine	Traveling Expense	County Society Services	15.60
3-29	3151	5098	Minnesota Public Health Ass'n	Mimeographing Talk	Administrative, Misc.	5.27
3-29	3152	5099	Kirkwood Hotel	Guest Rooms for Legis. Com.	Legislative Committee	22.32
3-29	3153	5100	Bratton Printing Co.	Printing Approved Cards	Med. Economics Comm.	3.06
					Administrative, Misc.	.63
					County Society Services	.56
3-29	3154	5101	Western Union	February, 1935, Services	Council	.39
					Legislative	193.70
					Journal Ptg. and Engraving	.92
3-29	3155	5102	Central Engraving Co.	Halftones	Legislative Comm.	62.87
3-29	3156	5103	Morris Moore	Legislative Telegrams	Legislative Committee	11.55
3-29	3157	5104	Direct Advertising	Printing	Legislative Committee	10.30
					Administrative, Misc.	21.46
3-29	3158	5105	Gordon F. Harkness	Traveling Expenses	County Society Services	27.40
					Legislative Committee	9.40
					Annual Session	.40
3-29	3159	5106	Koch Brothers	Office Supplies	Legislative Committee	66.58
					Office Supplies	22.35
					Journal Ptg. and Engraving	534.30
					Administrative, Misc.	12.00
3-29	3160	5107	Wallace-Homestead Co.	Printing	Stationery and Printing	15.30
					Legislative Committee	15.82
					Reprints	61.45
3-29	3161	5108	Fred Moore	Legislative Activities	Legislative Committee	2,000.00
4-3	3165	5112	Raymond E. Peck	Traveling Expense	Annual Session	18.15
4-9	3168	5115	Postmaster	Mailing Relief Plan to members	County Society Services	33.75
4-12	3169	5116	Markwell Typewriter Ex.	Repairing Machines	Rent and Office Supplies	28.83
4-19	3179	5125	Cash	Office Postage	Rent and Office Supplies	10.00
4-25	3178	5129	Mrs. R. N. Meng	Advertising Commission to Mr. Meng	Journal Ptg. and Engraving	28.80
4-26	3180	5130	Robt. L. Parker	April, 1935, Salary	General Salaries	75.00
4-26	3181	5131	Grace J. McDonald	April Salary	General Salaries	85.00
4-26	3182	5132	R. R. Simmons	April Salary	Journal Ptg. and Engraving	100.00
4-26	3183	5133	Mary McCord	April Salary	Speakers Bureau	100.00
					General Salaries	35.00
4-26	3184	5134	Virginia Stewart	April, 1935, Salary	Journal Ptg. and Engraving	115.00
4-26	3185	5135	Dorothy Nelson	April, 1935, Salary	General Salaries	150.00
4-30	3194	5141	Iowa Press Clipping Bureau	March, 1935, Clippings	Journal Ptg. and Engraving	14.35
4-30	3195	5142	Des Moines Elec. Light Co.	Bulbs for Office	Rent and Office Supplies	2.86
4-30	3196	5143	The Flax Company	Carbon Paper	Rent and Office Supplies	5.00

Amount Forward.....\$11,850.73

## Schedule No. 1—Continued

Date	Check	Order	Drawn in Favor of	In Payment of	Distribution	Amount
1935	No.	No.		Amount Brought Forward.....		\$11,850.73
4-30	3197	5144	Robert L. Parker.....	Traveling Expenses.....	County Society Services.....	22.70
4-30	3198	5145	T. F. Thornton.....	Traveling Exp. Econ. Meeting.....	Med. Economics Committee.....	12.50
4-30	3199	5146	J. C. Donahue.....	Traveling Exp. Econ. Meeting.....	Med. Economics Committee.....	10.00
4-30	3200	5147	James C. Hill.....	Traveling Exp. Econ. Meeting.....	Med. Economics Committee.....	3.00
4-30	3201	5148	H. E. Farnsworth.....	Child Health and Protection.....	Speakers Bureau.....	23.00
4-30	3202	5149	E. J. Watson.....	Joint Meeting Council and Com.....	Other Committees.....	25.50
4-30	3203	5150	John I. Marker.....	Trustees Meeting.....	Trustees.....	15.39
4-30	3204	5151	M. C. Hennessy.....	Council Phone Calls.....	Council.....	3.60
4-30	3205	5152	Bankers Building Corp.....	April, 1935, Rent.....	Rent and Office Supplies.....	90.00
					Administrative, Misc.....	4.35
					Rent and Office Supplies.....	17.05
					County Society Services.....	1.05
					Trustees.....	3.50
					Council.....	4.45
4-30	3206	5153	N. W. Bell Telephone Co.....	April Service and March Toll.....	Legislative Committee.....	139.76
					Med. Economics Committee.....	7.65
					Annual Session.....	2.65
					Journal Ptg. and Engraving.....	4.45
					Speakers Bureau.....	15.00
4-30	3207	5154	F. P. McNamara.....	Scientific Exhibits Expense.....	Annual Session.....	18.12
					County Society Services.....	.70
4-30	3208	5155	Western Union.....	March Services.....	Legislative Committee.....	1.98
					Annual Session.....	1.26
					Speakers Bureau.....	.55
4-30	3209	5156	Hotel Savary.....	Rooms during Legislative Session.....	Legislative Committee.....	57.32
4-30	3210	5157	Direct Advertising.....	Two mailings Legislative Material.....	Legislative Committee.....	53.65
4-30	3211	5158	Addressograph Co.....	Plates and Equipment.....	Rent and Office Supplies.....	5.92
					Stationery and Printing.....	2.87
4-30	3212	5159	Central Engraving Company.....	Halftones.....	Annual Session.....	30.00
					Journal Ptg. and Engraving.....	13.25
4-30	3213	5160	Battenfield & Ball.....	Legislative Phone Calls.....	Legislative Committee.....	2.66
4-30	3214	5161	E. M. Myers.....	Legislative Calls and Steno. Work.....	Legislative Committee.....	9.20
4-30	3215	5162	Koch Brothers.....	Legislative and Office Supplies.....	Legislative Committee.....	256.60
					Rent and Office Supplies.....	60.80
					Administrative, Misc.....	3.06
4-30	3216	5163	Gordon F. Harkness.....	Misc. Traveling Expenses.....	County Society Services.....	11.40
					Legislative Committee.....	43.58
					Annual Session.....	3.20
					Legislative Committee.....	3.83
4-30	3217	5164	Wallace-Homestead Co.....	Printing.....	Journal Ptg. and Engraving.....	551.97
					Reprints.....	44.43
5-9	3222	5169	Mrs. H. J. Wood.....	Secretaries Luncheon.....	Annual Session.....	66.25
5-13	3226	5170	Dutcher, Walker & Ries.....	Legal Services—First Quarter.....	Medico-Legal Committee.....	198.70
5-13	3227	5171	Burnstedt & Heminway.....	Legal Services—Crumpton Case.....	Medico-Legal Committee.....	389.09
5-17	3228	5175	C. R. I. & P. Ry.....	Traveling Expense.....	Annual Session.....	9.95
5-17	3229	5176	Marie Hale.....	Extra Help during session.....	Annual Session.....	10.00
5-17	3230	5177	Mary L. McCord.....	Davenport Trip.....	Annual Session.....	20.50
5-17	3231	5178	Dorothy M. Nelson.....	Traveling Expense.....	Annual Session.....	12.50
5-17	3232	5179	C. Anderson Aldrich.....	Expense—Guest Speaker.....	Annual Session.....	10.00
5-17	3233	5180	W. S. Middleton.....	Expense—Guest Speaker.....	Annual Session.....	29.89
5-27	3238	5185	Cash.....	Postage.....	Rent and Office Supplies.....	10.00
5-27	3239	5186	Robert L. Parker.....	May Salary.....	General Salaries.....	75.00
5-27	3240	5187	Grace J. McDonald.....	May Salary.....	General Salaries.....	55.00
5-27	3241	5188	R. R. Simmons.....	May Salary.....	Journal Ptg. and Engraving.....	100.00
5-27	3242	5189	Mary McCord.....	May Salary.....	Speakers Bureau.....	100.00
5-27	3243	5190	Virginia Stewart.....	May Salary.....	General Salaries.....	35.00
5-27	3244	5191	Dorothy Nelson.....	May Salary.....	Journal Ptg. and Engraving.....	115.00
5-31	3251	5198	Fred Moore.....	Traveling Expense.....	General Salaries.....	150.00
5-31	3252	5199	Iowa Press Clipping Bureau.....	March Clippings.....	Administrative, Misc.....	79.35
5-31	3253	5200	Hopkins & Mulock.....	Insurance on Sec. Treas. Bonds.....	Journal Ptg. and Engraving.....	14.35
					Administrative, Misc.....	87.50
5-31	3254	5201	E. M. Myers.....	Traveling Expense.....	Trustees.....	1.90
					Legislative Committee.....	3.40
5-31	3255	5202	Des Moines Clean Towel Service.....	March, April, May Services.....	Other Committees.....	4.20
5-31	3256	5203	Robert L. Parker.....	Meeting Expense.....	Rent and Office Supplies.....	3.75
5-31	3257	5204	E. D. Plass.....	Baldrige Memorial Committee.....	Administrative, Misc.....	102.85
5-31	3258	5205	Bankers Building Corp.....	May Rent.....	Other Committees.....	14.09
5-31	3259	5206	F. A. Hennessy.....	Telephone and Traveling Expense.....	Rent and Office Supplies.....	90.00
					Legislative Committee.....	30.70
					Rent and Office Supplies.....	16.42
					County Society Services.....	4.50
					Trustees.....	1.75
5-31	3260	5207	N. W. Bell Telephone Co.....	May Service and April Tolls.....	Legislative Committee.....	104.95
					Medical Economics Comm.....	.90
					Annual Session.....	12.15
					Journal Ptg. and Engraving.....	2.60
					Speakers Bureau.....	12.55
5-31	3261	5208	Hotel Savary.....	Meeting Expense.....	Legislative Committee.....	11.50
					Administrative, Misc.....	.82
5-31	3262	5209	Western Union.....	April Services.....	County Society Services.....	.82
					Legislative Committee.....	9.09
					Journal Ptg. and Engraving.....	.71
					Speakers Bureau.....	.62
5-31	3263	5210	John C. Parsons.....	Meeting Expense.....	Annual Session.....	11.75
5-31	3264	5211	A. W. Erskine.....	Miscellaneous Expense.....	County Society Services.....	8.35
					Council.....	3.10
					Annual Session.....	1.50
5-31	3265	5212	C. A. Boice.....	Expense County Society Meeting.....	Council.....	76.75
5-31	3266	5213	F. A. Ely.....	Legal Expense.....	Medico-Legal Committee.....	19.70
5-31	3267	5214	L. R. Woodward.....	Misc. Traveling Expense.....	Council.....	11.90
5-31	3268	5215	Yellow Cab Company.....	Taxi Fare—Robt. Parker.....	Legislative Committee.....	13.70
					Administrative Misc.....	.70
					Rent and Office Supplies.....	20.62
					Stationery and Printing.....	145.93
5-31	3269	5216	Koch Brothers.....	Supplies.....	Legislative Committee.....	47.68
					Annual Session.....	2.30
					Journal Ptg. and Engraving.....	22.60
					Speakers Bureau.....	3.93

Amount Forward.....\$15,874.54



## Schedule No. 1—Continued

Date 1935	Check No.	Order No.	Drawn in Favor of	In Payment of Amount Brought Forward	Distribution	Amount
5-31	3270	5217	Multigraph Co.	Ribbon reinked	Rent and Office Supplies	3.13
5-31	3271	5218	Central Engraving Co.	Halftones—Zincs	Annual Session	30.65
					Journal Ptg. and Engraving	33.19
					Stationery and Printing	10.20
					Legislative Committee	9.95
5-31	3272	5219	Wallace-Homestead Co.	Printing	Annual Session	188.60
					Journal Ptg. and Engraving	782.54
					Reprints	63.85
6-18	3273	5220	J. Earl Hammer	Advertising Commissions	Journal Ptg. and Engraving	63.00
6-25	3281	5228	Iowa Press Clipping Bureau	May Clippings	Journal Ptg. and Engraving	15.72
6-25	3282	5229	American Medical Assn.	Chiropractic Catechism	Legislative Committee	3.00
6-25	3283	5230	French Way Cleaners	Cleaning Drapes	Rent and Office Supplies	3.80
6-25	3284	5231	Cash	Office Postage	Rent and Office Supplies	10.00
6-25	3285	5232	Robert L. Parker	June, 1935, Salary	General Salaries	75.00
6-25	3286	5233	Grace J. McDonald	June, 1935, Salary	General Salaries	85.00
6-25	3287	5234	Mary McCord	June, 1935, Salary	Speakers Bureau	100.00
6-25	3288	5235	R. R. Simmons	June, 1935, Salary	Journal Ptg. and Engraving	100.00
					General Salaries	35.00
6-25	3289	5236	Virginia Stewart	June, 1935, Salary	Journal Ptg. and Engraving	115.00
					General Salaries	150.00
6-25	3290	5237	Dorothy Nelson	June, 1935, Salary	Rent and Office Supplies	14.14
					County Society Services	2.40
					Legislative Committee	5.80
					Med. Economics Committee	1.55
					Annual Session	4.90
					Speakers Bureau	7.30
6-25	3292	5239	R. D. Bernard	Legislative Committee Expense	Legislative Committee	159.48
6-25	3293	5240	W. E. Walsh	Legislative Committee Expense	Legislative Committee	7.75
6-25	3294	5241	T. F. Thornton	A. M. A. Meeting	Administrative, Misc.	75.02
6-25	3295	5242	C. C. Hall	Legislative Activities	Legislative Committee	3.56
6-25	3296	5243	Commercial Engraving Co.	Zinc for Journal	Journal Ptg. and Engraving	7.22
6-25	3297	5244	T. F. Thornton	Traveling Expenses	Med. Economics Committee	37.22
6-25	3298	5245	Smith and Smith Ptg. Co.	100 Envelopes	Rent and Office Supplies	3.46
					County Society Services	3.29
6-25	3299	5246	Western Union	May Services	Legislative Committee	.10
					Journal Ptg. and Engraving	1.33
6-25	3300	5247	Central Engraving Co.	Halftones	Journal Ptg. and Engraving	16.52
6-25	3301	5248	Cash	Postage for Journal Questionnaire	Journal Ptg. and Engraving	25.00
6-25	3302	5249	E. L. Wurtzer	Traveling Expense	Other Committees	12.50
					Administrative, Misc.	14.93
					County Society Services	1.83
6-25	3303	5250	G. F. Harkness	Traveling Expense	Legislative Committee	21.67
					Annual Session	7.49
6-25	3304	5251	C. A. Boice	Traveling Expense	Council	12.60
6-25	3305	5252	Koch Brothers	Supplies	Rent and Office Supplies	7.61
					Council	119.57
					Stationery and Printing	9.95
6-25	3306	5253	Wallace-Homestead Co.	Printing	Annual Session	167.79
					Journal Ptg. and Engraving	579.29
					Reprints	73.04
7-1	3307	5254	Cash	Postage on Bus. Rep. Envs.	Journal Ptg. and Engraving	40.00
7-3	3308	5255	S. Joseph and Sons	Gavel	Annual Session	15.30
7-3	3309	5256	G. E. John	Carpenter Work	Annual Session	14.50
7-3	3310	5257	Scott County Med. Society	Annual Session Expense	Annual Session	175.00
7-3	3311	5258	F. L. Rector	Cancer Exhibit	Annual Session	16.30
7-3	3312	5259	Loyal Davis	Guest Speaker Expense	Annual Session	10.00
7-3	3313	5260	New Masonic Temple Ass'n	Rent—Convention	Annual Session	600.00
7-3	3314	5261	J. H. C. Peterson's Sons Co.	Exhibit Booths	Annual Session	385.20
7-3	3315	5262	Davenport Electric Con. Co.	Wiring at Masonic Temple	Annual Session	97.56
7-3	3316	5263	Standard X-Ray Corp.	View Boxes and Freight	Annual Session	17.20
7-3	3317	5264	Master Reporting Co.	Reporting Meeting	Annual Session	364.74
7-3	3318	5265	Blackhawk Hotels Corp.	Banquet and Room Charges	Annual Session	477.24
7-3	3319	5266	Zoecklers	Supplies	Annual Session	2.04
7-3	3320	5267	Raymond E. Peck	Return Freight on X-Ray Exhibit	Annual Session	5.40
7-15	3327	5273	J. Earl Hammer	Advertising Commission	Journal Ptg. and Engraving	50.00
7-15	3328	5274	Iowa Tuberculosis Ass'n	Mimeograph Paper	Stationery and Printing	3.75
7-19	3331	5277	Grace J. McDonald	July Salary	General Salaries	95.00
7-27	3332	5278	Petty Cash	Office Postage	Rent and Office Supplies	10.00
7-27	3333	5279	Postmaster	Journal Postage	Journal Ptg. and Engraving	50.00
7-27	3334	5280	Robert L. Parker	July Salary	General Salaries	75.00
7-27	3335	5281	R. R. Simmons	July Salary	Journal Ptg. and Engraving	100.00
7-27	3336	5282	Mary McCord	July Salary	Speakers Bureau	115.00
					Journal Ptg. and Engraving	125.00
7-27	3337	5283	Virginia Stewart	July Salary	General Salaries	35.00
					General Salaries	175.00
7-27	3338	5284	Dorothy Nelson	July Salary	General Salaries	12.60
7-31	3340	5286	Iowa Press Clipping Bureau	June Clippings	Journal Ptg. and Engraving	5.48
7-31	3341	5287	Capital City Ptg. Plate Co.	Simmons Cut and Etching	Journal Ptg. and Engraving	22.60
7-31	3342	5288	H. A. Spilman	Council Expense	Council	13.98
					Rent and Office Supplies	1.15
					County Society Services	3.10
7-31	3343	5289	N. W. Bell Tel. Co.	June Tolls, July Service	Journal Ptg. and Engraving	2.65
					Speakers Bureau	4.05
7-31	3344	5290	Commercial Engraving Co.	Cut for Building Page	Journal Ptg. and Engraving	7.64
7-31	3345	5291	Gaar Brothers	Stencil Coupon Book	Rent and Office Supplies	17.44
7-31	3346	5292	V. L. Treyner	Traveling Expenses	Administrative, Misc.	66.04
7-31	3347	5293	Iowa-Des Moines National Bank	Safekeeping	Administrative, Misc.	17.25
7-31	3348	5294	B. F. Wolverton	Program Committee Meeting	Annual Session	12.50
7-31	3349	5295	Bankers Building Corp.	June and July Rent	Rent & Office Supplies	180.00
7-31	3350	5296	James E. Reeder	Council Expense	Council	9.15
7-31	3351	5297	Addressograph Co.	Changes on Plates	Rent and Office Supplies	5.52
7-31	3352	5298	Koch Brothers	Supplies	Rent and Office Supplies	20.25
					Other Committees	.63
7-31	3353	5299	Western Union	June Services	Journal Ptg. and Engraving	25
7-31	3354	5300	Central Engraving Co.	Halftones for Journal	Journal Ptg. and Engraving	21.61
					Stationery and Printing	8.42
7-31	3355	5301	Wallace-Homestead Co.	Printing	Journal Ptg. and Engraving	533.55
					Reprints	77.95

Amount Forward.....\$23,254.58

## Schedule No. 1—Continued

Date 1935	Check No.	Order No.	Drawn in Favor of	In Payment of Amount Brought Forward	Distribution	Amount
						\$23,254.58
8-23	3360	5306	Cash	Office Postage	Rent and Office Supplies	10.00
8-27	3363	5309	Robert L. Parker	August Salary	General Salaries	75.00
8-27	3364	5310	Grace J. McDonald	August Salary	General Salaries	95.00
8-27	3365	5311	Mary McCord	August Salary	Speakers Bureau	115.00
8-27	3366	5312	Virginia Stewart	August Salary	General Salaries	35.00
8-27	3367	5313	Dorothy Nelson	August Salary	Journal Ptg. and Engraving	125.00
8-31	3368	5314	Des Moines Clean Towel Service	June, July and August Service	General Salaries	175.00
8-31	3369	5315	M. C. Hennessy	Phone Calls and Telegrams	Rent and Office Supplies	3.75
8-31	3370	5316	R. R. Simmons	August Salary	Council	3.85
8-31	3371	5317	Bankers Bldg. Corp.	August Rent	Journal Ptg. and Engraving	100.00
8-31	3372	5318	Western Union	July Service	Rent and Office Supplies	90.00
					Legislative Committee	1.42
8-31	3373	5319	Wallace-Homestead Co.	Printing	Journal Ptg. and Engraving	.97
9-13	3374	5322	J. Earl Hammer	Advertising Commission	Journal Ptg. and Engraving	860.80
9-13	3375	5323	Postmaster	Mailing Journal Bulletins	Reprints	18.85
9-21	3381	5327	Stephens, Thornell & Millhone	Legal Services	Journal Ptg. & Engraving	115.50
9-26	3383	5329	Robert L. Parker	September Salary	Journal Ptg. and Engraving	22.76
9-26	3385	5330	Grace J. McDonald	September Salary	Medico-Legal Comm.	77.99
9-26	3386	5331	Mary McCord	September, 1935, Salary	General Salaries	75.00
					General Salaries	95.00
9-26	3387	5332	Virginia Stewart	September, 1935, Salary	Speakers Bureau	115.00
					General Salaries	35.00
9-26	3384	5333	Dorothy Nelson	September, 1935, Salary	Journal Ptg. and Engraving	125.00
9-30	3398	5344	R. R. Simmons	September, 1935, Salary	General Salaries	175.00
9-30	3404	5350	Felix A. Hennessy	Council Phone Calls	Journal Ptg. and Engraving	100.00
9-30	3405	5351	Iowa Press Clipping Bureau	July and August Clippings	Council	18.25
9-30	3406	5352	Bankers Building Corp.	September Rent	Journal Ptg. and Engraving	27.35
					Rent and Office Supplies	90.00
					Rent and Office Supplies	14.18
9-30	3407	5353	N. W. Bell Telephone Co.	August Service and July Tolls	County Society Services	1.55
					Council	3.45
					Speakers Bureau	15.05
					Rent and Office Supplies	14.22
9-30	3408	5354	N. W. Bell Telephone Co.	September Service and August Tolls	Legislative Committee	.75
					Speakers Bureau	23.60
					Other Committees	1.40
9-30	3409	5355	E. M. Myers	Trustees Meeting	Trustees	4.20
9-30	3410	5356	John I. Marker	Trustees Meeting	Trustees	44.80
9-30	3411	5357	Addressograph Company	New Plates and Changes	Rent and Office Supplies	2.33
9-30	3412	5358	Zaisers	Office Supplies	Rent and Office Supplies	3.26
9-30	3413	5359	Iowa Tuberculosis Assn.	Six Reams Mimeo. Paper	Journal Ptg. and Engraving	4.50
9-30	3414	5360	Western Union	August, 1935, Service	Administrative Misc.	.20
9-30	3415	5361	Central Engraving Co.	Halftones for Journal	Speakers Bureau	2.97
9-30	3416	5362	L. R. Woodward	Traveling Exp. and Phone Calls	Journal Ptg. and Engraving	66.25
					Council	3.11
					Speakers Bureau	15.35
					Rent and Office Supplies	50.14
9-30	3417	5363	Koch Brothers	Printing and Supplies	Stationery and Printing	120.39
					Legislative Committee	9.27
					Speakers Bureau	69.29
9-30	3418	5364	Wallace-Homestead Co.	Printing	Journal Ptg. and Engraving	476.63
					Reprints	94.81
10-23	3419	5365	Robert L. Parker	Meeting	Administrative, Misc.	39.52
10-24	3420	5366	Iowa Press Clipping Bureau	September Clippings	Journal Ptg. and Engraving	9.26
10-24	3421	5367	Cash	Office Postage	Rent and Office Supplies	10.00
					Rent and Office Supplies	14.38
					County Society Services	2.65
10-24	3422	5368	N. W. Bell Telephone Co.	October Service and September Tolls	Council	5.95
					Journal Ptg. and Engraving	2.00
					Speakers Bureau	33.60
10-24	3423	5369	Postmaster	Journal Postage	Journal Ptg. and Engraving	50.00
10-24	3424	5370	Robert L. Parker	October, 1935, Salary	General Salaries	75.00
10-24	3425	5371	Grace J. McDonald	October, 1935, Salary	General Salaries	95.00
10-24	3426	5372	R. R. Simmons	October, 1935, Salary	Journal Ptg. and Engraving	100.00
10-24	3427	5373	Mary McCord	October, 1935, Salary	Speakers Bureau	115.00
10-24	3428	5374	Virginia Stewart	October, 1935, Salary	General Salaries	35.00
10-24	3429	5375	Bankers Building Corp.	October, 1935, Rent	Journal Ptg. and Engraving	125.00
					Rent and Office Supplies	90.00
					Administrative, Misc.	.20
10-24	3430	5376	Western Union	September Services	County Society Services	32
					Journal Ptg. and Engraving	.45
					Speakers Bureau	5.97
10-24	3431	5377	Dutcher, Walker & Ries	Legal Services 2d, 3d Quarters	Medico-Legal Committee	265.35
					Rent and Office Supplies	65.23
10-24	3432	5378	Koch Brothers	Printing and Supplies	Journal Ptg. and Engraving	14.79
					Speakers Bureau	16.21
					Stationery and Printing	4.08
10-24	3433	5379	Wallace-Homestead Co.	Printing	Journal Ptg. and Engraving	576.81
					Reprints	82.47
10-24	3434	5380	F. A. Hennessy	Meeting October 10, 1935	Council	20.00
10-24	3435	5381	L. R. Woodward	Meeting October 10, 1935	Council	14.85
10-24	3436	5382	F. P. Winkler	Meeting October 10, 1935	Council	30.50
10-24	3437	5383	James E. Reeder	Meeting October 10, 1935	Council	21.40
10-24	3438	5384	C. W. Ellyson	Meeting October 10, 1935	Council	49.52
10-24	3439	5385	A. W. Erskine	Meeting October 10, 1935	Council	18.00
10-24	3440	5386	C. A. Boice	Meeting October 10, 1935	Council	13.50
10-24	3441	5387	H. A. Spilman	Meeting October 10, 1935	Council	10.00
10-24	3442	5388	James G. Macrae	Meeting October 10, 1935	Council	7.00
10-24	3443	5389	M. C. Hennessy	Meeting October 10, 1935	Council	15.20
10-24	3444	5390	F. A. Hennessy	Fifth Councilor Meeting Sept. 27	County Society Services	10.00
					Council	10.00
10-24	3445	5391	A. W. Erskine	Traveling Expense	County Society Services	5.77
10-24	3446	5392	F. P. McNamara	Council Meeting, Oct. 10, 1935	Council	1.50
10-24	3447	5393	Peirce D. Knott	Public Relations Com. Oct. 10, 1935	Other Committees	1.50
10-24	3448	5394	Evon Walker	Public Relations Com. Oct. 10, 1935	Other Committees	10.00
10-24	3449	5395	Walter R. Brock	Prof. Relations Com. Oct. 10, 1935	Other Committees	31.20

Amount Forward.....\$29,181.95



## Schedule No. 1—Continued

Date 1935	Check No.	Order No.	Drawn in Favor of	In Payment of	Distribution	Amount
				Amount Brought Forward.....		\$29,181.95
10-24	3450	5396	Donald C. Conzett.....	Prof. Relations Com. Oct. 10, 1935.....	Other Committees .....	19.80
10-24	3451	5397	E. J. Watson.....	Prof. Relations Com. Oct. 10, 1935.....	Other Committees .....	8.50
10-24	3452	5398	H. E. Farnsworth.....	Child Health Prot. Com. Meet.....	Other Committees .....	19.85
10-24	3453	5399	R. H. McBride.....	Child Health Prot. Com. Meet.....	Other Committees .....	20.00
10-24	3454	5400	E. D. Plass.....	Child Health Prot. Com. Meet.....	Other Committees .....	1.75
10-24	3455	5401	E. P. Phillips.....	Child Health Prot. Com. Meet.....	Other Committees .....	17.75
10-24	3456	5402	Howard A. Weis.....	Child Health Prot. Com. Meet.....	Other Committees .....	11.55
11-8	3473	5419	J. Earl Hammer.....	Advertising Commissions .....	Journal Ptg. and Engraving..	131.70
11-21	3491	5437	Paul Benton .....	One Ream Auto Copy.....	Rent and Office Supplies.....	1.50
11-21	3492	5438	Old Dutch Carbon & Rib. Co.....	Coupons for ribbons.....	Rent and Office Supplies.....	9.18
11-21	3493	5439	Iowa Press Clipping Bureau.....	October, 1935, Clippings.....	Journal Ptg. and Engraving..	13.77
11-21	3494	5440	Markwell Typewriter Co.....	Repairs for Typewriters.....	Rent and Office Supplies.....	2.10
11-21	3495	5441	Des Moines Clean Towel Service.....	Sept, Oct., Nov., Service.....	Rent and Office Supplies.....	3.75
11-21	3496	5442	Cash .....	Office Postage .....	Rent and Office Supplies.....	10.00
11-21	3497	5443	Robert L. Parker.....	November, 1935, Salary.....	General Salaries .....	75.00
11-21	3498	5444	Grace J. McDonald.....	November, 1935, Salary.....	General Salaries .....	95.00
11-21	3499	5445	R. R. Simmons.....	November, 1935, Salary.....	Journal Ptg. and Engraving..	100.00
11-21	3500	5446	Mary McCord .....	November, 1935, Salary.....	Speakers Bureau .....	115.00
11-21	3501	5447	Virginia Stewart .....	November, 1935, Salary.....	General Salaries .....	35.00
11-21	3502	5448	Dorothy Nelson .....	Nov. 15-Nov. 30, 1935, Salary.....	Journal Ptg. and Engraving..	125.00
					General Salaries .....	87.50
					Rent and Office Supplies.....	14.34
11-21	3503	5449	N. W. Bell Telephone Co.....	Nov., 1935 Service and Oct. Toll.....	Med. Econ. Committee.....	6.15
					Other Committees .....	2.70
					Speakers Bureau .....	25.10
11-21	3504	5450	Bankers Building Corp. ....	November, 1935, Rent.....	Rent and Office Supplies.....	90.00
11-21	3505	5451	Des Moines Club .....	Luncheons .....	Administrative, Misc. ....	5.06
					Administrative, Misc. ....	3.36
11-21	3506	5452	Western Union .....	October Services .....	County Society Services.....	.47
					Journal Ptg. and Engraving..	4.01
11-21	3507	5453	Coles, Inc. ....	Advertising Commission .....	Journal Ptg. and Engraving..	9.00
11-21	3508	5454	Central Engraving Co.....	Halftones .....	Journal Ptg. and Engraving..	95.62
11-21	3509	5455	Wallace-Homestead Co.....	Printing .....	Journal Ptg. and Engraving..	585.24
					Reprints .....	91.80
					Council .....	20.00
12-2	3516	5468	Cash .....	Post Cards .....	Journal Ptg. and Engraving..	36.00
12-11	3529	5475	J. Earl Hammer.....	Advertising .....	General Salaries .....	75.00
12-19	3530	5476	Robt. L. Parker.....	December Salary .....	General Salaries .....	95.00
12-19	3531	5477	Grace McDonald.....	December Salary .....	Speakers Bureau .....	115.00
12-19	3532	5478	Mary McCord .....	December Salary .....	Journal Ptg. and Engraving..	125.00
12-19	3533	5479	Virginia Stewart .....	December Salary .....	General Salaries .....	35.00
12-19	3534	5480	Dorothy Nelson .....	December Salary .....	General Salaries .....	175.00
12-19	3535	5481	Cash .....	Postage .....	Rent and Office Supplies.....	10.00
12-19	3536	5482	H. J. McCoy.....	Year's Salary .....	General Salaries .....	50.00
12-19	3537	5483	R. R. Simmons.....	December Salary .....	Journal Ptg. and Engraving..	100.00
12-31	3558	5504	Iowa Press Clipping Bureau.....	November Clippings .....	Journal Ptg. and Engraving..	13.52
12-31	3559	5505	Paul Benton .....	Auto Copy Paper .....	Rent and Office Supplies.....	7.50
12-31	3560	5506	F. A. Hennessy.....	Telephone Calls .....	Council .....	9.80
12-31	3561	5507	Des Moines Light & Power Co.....	Light Globes .....	Rent and Office Supplies.....	7.65
12-31	3562	5508	C. P. Phillips.....	Travel Expense .....	Other Committees .....	17.00
12-31	3563	5509	C. W. Ellyson.....	Travel Expense .....	Council .....	36.48
12-31	3564	5510	Bankers Building Corp.....	December Rent .....	Rent .....	90.00
					Rent and Office Supplies.....	14.33
					Trustees .....	1.35
					Council .....	7.15
12-31	3565	5511	N. W. Bell Telephone Co.....	Dec. Telephone and Nov. Tolls.....	Legislative Committee .....	8.85
					Med. Econ. Committee.....	1.25
					Other Committees .....	.75
					Journal Ptg. and Engraving..	.75
					Speakers Bureau .....	8.30
12-31	3566	5512	J. G. Macrae.....	Travel Expense .....	Council .....	8.00
12-31	3567	5513	F. P. Winkler.....	Travel Expense .....	Council .....	30.50
12-31	3568	5514	J. E. Reeder.....	Travel Expense .....	Council .....	20.00
12-31	3569	5515	L. R. Woodward.....	Travel Expense .....	Council .....	13.95
12-31	3570	5516	John I. Marker.....	Travel Expense .....	Trustees .....	21.40
12-31	3571	5517	H. E. Farnsworth.....	Travel Expense .....	Other Committees .....	15.50
12-31	3572	5518	Gordon F. Harkness.....	Postage .....	Rent and Office Supplies.....	1.32
12-31	3573	5519	H. A. Spilman.....	Travel Expense .....	Council .....	13.50
12-31	3574	5520	F. P. McNamara.....	Travel Expense .....	Other Committees .....	13.78
12-31	3575	5521	Robert L. Parker.....	Travel Expense .....	Annual Session .....	1.08
12-31	3576	5522	S. W. Corbin.....	Travel Expense .....	Administrative, Misc. ....	27.86
12-31	3577	5523	E. M. Myers.....	Travel Expense .....	Legislative Committee .....	6.50
12-31	3578	5524	Evon Walker.....	Travel Expense .....	Trustees .....	11.55
12-31	3579	5525	Howard A. Weis.....	Travel Expense .....	Other Committees .....	10.00
12-31	3580	5526	T. F. Thornton.....	Travel Expense .....	Med. Econ. Committee.....	19.00
12-31	3581	5527	Smith & Smith Printing Co.....	Envelopes .....	Med. Econ. Committee.....	21.50
12-31	3582	5528	Addressograph Co.....	Supplies .....	Rent and Office Supplies.....	3.45
12-31	3583	5529	Zaisers .....	Office Supplies .....	Rent and Office Supplies.....	2.37
12-31	3584	5530	Western Union .....	Telegraph .....	Rent and Office Supplies.....	2.14
					Administrative Misc. ....	1.95
12-31	3585	5531	Central Engraving Co.....	Halftones .....	Speakers Bureau .....	1.10
12-31	3586	5532	M. C. Hennessy.....	Travel Expense .....	Journal Ptg. and Engraving..	44.36
12-31	3587	5533	C. A. Boice.....	Council Expense .....	Council .....	20.20
12-31	3588	5534	R. D. Bernard.....	Legislative Comm. Expense.....	Council .....	78.25
12-31	3589	5535	Miller, Everett & Miller.....	Attorney Fees .....	Legislative Committee .....	71.55
					Medico-Legal Comm. ....	50.00
					County Society Services.....	92.00
12-31	3590	5536	T. A. Burcham.....	Travel Expense .....	Administrative, Misc. ....	60.41
					Speakers Bureau .....	3.30
					Rent and Office Supplies.....	61.57
12-31	3591	5537	Koch Brothers .....	Office Supplies .....	Stationery and Printing.....	305.54
					Speakers Bureau .....	20.28
12-31	3592	5538	Wallace-Homestead Co.....	Printing .....	Stationery and Printing.....	14.79
					Journal Ptg. and Engraving..	659.60
					Reprints .....	21.81
12-31	3593	5539	B. F. Wolverton.....	Travel Expense .....	Other Committees .....	25.00
12-31	3594	5540	E. B. Rush.....	Travel Expense .....	Other Committees .....	9.30
12-31	3595	5541	Koch Brothers .....	Office Furniture .....	Rent and Office Supplies.....	81.17

TOTAL.....\$33,949.76

## Schedule No. 2

## EXPENDITURES—SPEAKERS BUREAU

For the Year Ended December 31, 1935

Date 1935	Check No.	Order No.	Drawn in Favor of	In Payment of	Distribution	Amount
1-18	3027	4974	M. E. Barnes, M.D.	Radio Talks	Radio Talks	\$ 5.00
1-27	3055	5002	F. R. Richmond, M.D.	Post Graduate Expense	Post Graduate Course	2.17
1-27	3056	5003	Cash	Post Cards	Printing and Stationery	10.00
1-27	3057	5004	M. E. Barnes, M.D.	Traveling Expense	Travel Expense	3.40
2-9	3061	5003	Felix Hennessy, M.D.	Traveling Expense	Travel Expense	7.00
2-9	3062	5009	Ray Rich	Radio Talks	Radio Talks	5.25
2-9	3063	5010	Chas. F. Obermann, M.D.	Traveling Expense	Travel Expense	8.00
2-9	3064	5011	James Dunn, M.D.	Expense Re Dr. Jaffe's Dinner	Post Graduate Course	5.00
2-9	3065	5012	E. M. Myers, M.D.	Traveling Expense	Travel Expense	19.40
2-13	3066	5013	Cash	Postage	Post Graduate Course	11.55
2-13	3067	5014	Mary L. McCord	Traveling Expense	Travel Expense	15.50
2-20	3113	5017	T. U. McManus, M.D.	Traveling Expense	Travel Expense	6.25
2-20	3114	5018	W. D. Sutliff	Travel Expense	Post Graduate Course	27.50
2-20	3115	5019	Chicago Northwestern Railway	Travel Expense	Post Graduate Course	17.60
2-20	3116	5020	American Medical Ass'n	Freight Charges	Post Graduate Course	1.18
2-20	3117	5021	D. J. Glomset, M.D.	Traveling Expense	Travel Expense	49.00
2-21	3118	5022	H. A. Reimann, M.D.	Traveling Expense	Post Graduate Course	19.80
2-26	3119	5023	Clifford J. Barborka, M.D.	Traveling Expense	Post Graduate Course	25.60
3-4	3120	5067	John H. Henkin, M.D.	Traveling Expense	Travel Expense	18.60
3-4	3121	5068	Des Moines Slide Co.	Lantern Slides	Miscellaneous	7.60
3-4	3122	5069	Lincoln Hotel	Dinners	Post Graduate Course	12.00
3-4	3124	5071	Ray Fox, M.D.	Travel Expense	Travel Expense	4.00
3-14	3125	5072	Chicago & Northwestern R. R.	Travel Expense	Post Graduate Course	18.80
3-14	3126	5073	J. E. Dyson, M.D.	Travel Expense	Travel Expense	4.50
3-14	3127	5074	James A. Greene, M.D.	Travel Expense	Post Graduate Course	6.40
3-14	3128	5075	Cash	Post Cards	Miscellaneous	10.00
3-21	3129	5076	E. W. Scheldrup, M.D.	Travel Expense	Post Graduate Course	16.30
3-21	3130	5077	H. E. Michelson, M.D.	Travel Expense	Post Graduate Course	25.00
3-21	3131	5078	Julia Cole, M.D.	Travel Expense	Travel Expense	5.20
3-28	3133	5080	D. J. Glomset, M.D.	Travel Expense	Travel Expense	21.45
4-2	3162	5109	Gail McClure, M.D.	Travel Expense	Travel Expense	4.50
4-2	3163	5110	T. U. McManus, M.D.	Travel Expense	Travel Expense	28.90
4-2	3164	5111	Peter Bassoe, M.D.	Travel Expense	Post Graduate Expense	29.00
4-6	3166	5113	J. Edwards, M.D.	Travel Expense	Travel Expense	4.50
4-6	3167	5114	Walter L. Palmer, M.D.	Travel Expense	Post Graduate Course	28.80
4-15	3170	5117	E. M. Myers, M.D.	Travel Expense	Travel Expense	2.00
4-15	3171	5118	Frederick H. Lamb, M.D.	Travel Expense and Misc.	Post Graduate Course	65.68
4-15	3172	5119	Bernard Pantus, M.D.	Travel Expense	Post Graduate Course	30.00
4-15	3173	5120	Ivan T. Schultz, M.D.	Travel Expense	Travel Expense	3.50
4-19	3174	5121	Mayo Clinic	Travel Expense	Post Graduate Course	35.20
4-19	3175	5122	Julius S. Weingart, M.D.	Travel Expense	Post Graduate Course	37.50
4-19	3176	5123	M. E. Barnes, M.D.	Radio Talks	Radio Talks	5.30
4-19	3177	5124	Ray Rich	Radio Talks	Radio Talks	5.25
4-23	3186	5126	Fred M. Smith, M.D.	Travel Expense	Post Graduate Course	22.25
4-23	3187	5127	E. M. MacEwen, M.D.	Travel Expense	Post Graduate Course	16.30
4-23	3188	5128	Samuel W. Becker, M.D.	Traveling Expense	Post Graduate Course	25.60
4-30	3189	5136	Glenn C. Blome, M.D.	Traveling Expense	Travel Expense	6.20
4-30	3190	5137	W. E. Sanders, M.D.	Radio and Travel	Post Graduate Course	6.50
4-30	3191	5138	Warren H. Cole, M.D.	Traveling Expense	Radio Talks	3.00
4-30	3192	5139	W. E. Wolcott, M.D.	Traveling Expense	Post Graduate Course	18.60
4-30	3193	5140	J. B. Synhorst, M.D.	Traveling Expense	Travel Expense	46.75
5-6	3218	5165	D. J. Glomset, M.D.	Travel Expense	Travel Expense	7.90
5-6	3219	5166	S. D. Maiden, M.D.	Luncheons, Dinners, etc.	Travel Expense	47.95
5-6	3220	5167	F. P. McNamara, M.D.	Traveling Expense	Post Graduate Course	48.70
5-7	3221	5168	Woman's Auxiliary	Prizes	Post Graduate Course	32.95
5-15	3223	5172	Erich Lindemann, M.D.	Traveling Expense	Post Graduate Course	48.45
5-15	3224	5173	Cash	Post Cards	Miscellaneous	25.00
5-15	3225	5174	Arthur W. Erskine, M.D.	Travel Expense	Travel Expense	24.15
5-22	3234	5181	Frank A. Ely, M.D.	Travel Expense	Miscellaneous	10.00
5-22	3235	5182	Edward H. Skinner, M.D.	Travel Expense	Post Graduate Expense	21.92
5-22	3236	5183	Mary Ellen Oldag, M.D.	Travel Expense	Travel Expense	5.20
5-22	3237	5184	H. W. Morgan, M.D.	Travel Expense	Post Graduate Expense	10.29
5-29	3245	5192	B. F. Wolverton, M.D.	Travel Expense	Travel Expense	18.60
5-29	3246	5193	M. J. McGrane, M.D.	Travel Expense	Post Graduate Expense	11.10
5-29	3247	5194	H. W. Rathe, M.D.	Travel Expense	Post Graduate Expense	25.70
5-29	3248	5195	E. M. MacEwen, M.D.	Travel Expense	Post Graduate Course	12.00
5-31	3249	5196	Moses Barron, M.D.	Travel Expense	Post Graduate Course	35.90
5-31	3250	5197	C. H. Graening, M.D.	Travel Expense	Post Graduate Course	16.30
6-21	3274	5221	Wm. D. Paul, M.D.	Travel Expense	Post Graduate Course	15.00
6-21	3275	5222	R. N. Larimer, M.D.	Travel Expense	Travel Expense	48.70
6-21	3276	5223	C. A. Boice, M.D.	Travel Expense	Post Graduate Course	41.09
6-21	3277	5224	Carl L. Gillies, M.D.	Travel Expense	Post Graduate Course	12.00
6-21	3278	5225	R. B. Gibson, M.D.	Travel Expense	Radio Talks	19.40
6-21	3279	5226	Gedney Hotel	Meals	Post Graduate Course	86.02
6-21	3280	5227	N. L. Hersey, M.D.	Telephone Calls	Post Graduate Course	45.00
7-11	3321	5268	M. E. Barnes, M.D.	Radio Talks	Post Graduate Course	11.55
7-11	3322	5269	E. E. Shaw, M.D.	Travel Expense	Post Graduate Course	6.60
7-11	3323	5270	E. D. Plass, M.D.	Travel Expense	Radio Talks	5.25
7-11	3325	5271	Mary L. McCord	Travel Expense	Travel Expense	14.40
7-11	3326	5272	M. B. Call, M.D.	Travel Expense	Travel Expense	19.10
7-19	3329	5275	A. C. Starry, M.D.	Travel Expense	Travel Expense	19.00
7-19	3330	5276	Ray Rich	Radio Talks	Travel Expense	44.70
7-27	3339	5285	D. J. Glomset, M.D.	Travel Expense	Post Graduate Course	33.50
8-1	3356	5302	Nelle F. Schultz, M.D.	Travel Expense	Radio Talks	6.00
8-16	3357	5303	D. J. Glomset, M.D.	Travel Expense	Travel Expense	16.40
8-16	3358	5304	A. D. Woods, M.D.	Travel Expense	Travel Expense	7.80
8-16	3359	5305	J. S. McQuiston, M.D.	Travel Expense	Post Graduate Course	74.60
8-23	3361	5307	W. W. Bowen, M.D.	Traveling Expenses	Travel Expense	8.00
8-23	3362	5308	Cash	Post Cards	Travel Expense	4.25
9-11	3377	5320	W. W. Bowen, M.D.	Travel Expense	Printing and Stationery	10.00
					Radio Talks	6.00

Amount Forward \$ 1,780.83



## Schedule No. 2—Continued

Date	Check No.	Order No.	Drawn in Favor of	In Payment of	Distribution	Amount
1935	No.	No.		Amount Brought Forward.....		\$ 1,780.83
9-11	3376	5321	Julia Cole, M.D.....	Travel Expense .....	Radio Talks .....	14.00
9-20	3378	5324	Walter Kirch, M.D.....	Travel Expense .....	Travel Expense .....	7.60
9-20	3379	5325	E. M. Myers, M.D.....	Travel Expense .....	Travel Expense .....	2.80
9-20	3380	5326	Cash .....	Post Cards .....	Printing and Stationery.....	10.00
9-24	3382	5328	Rock Island Railway.....	Travel Expense .....	Post Graduate Course.....	15.70
10-2	3388	5334	H. R. Sugg, M.D.....	Traveling Expense .....	Travel Expense .....	4.75
10-2	3389	5335	Wallace-Homestead Company.....	Office Signs .....	Printing and Stationery.....	4.34
10-2	3390	5336	Mayo Clinic .....	Traveling Expense .....	Post Graduate Course.....	26.17
10-2	3391	5337	Blackhawk Hotel Company.....	Traveling Expense .....	Post Graduate Course.....	3.20
10-3	3392	5338	B. F. Wolverton, M.D.....	Lantern Slides .....	Travel Expense .....	14.30
10-9	3393	5339	H. A. Reimann, M.D.....	Traveling Expense .....	Post Graduate Course.....	28.50
10-9	3394	5340	W. M. Fowler, M.D.....	Traveling Expense .....	Post Graduate Course.....	6.75
10-9	3395	5341	Avery E. Lambert, M.D.....	Traveling Expense .....	Travel Expense .....	5.10
10-9	3396	5342	G. E. Harrison, M.D.....	Traveling Expense .....	Travel Expense .....	11.90
10-9	3397	5343	Stark Travel Service.....	Traveling Expense .....	Post Graduate Course.....	91.35
10-15	3399	5345	N. L. Hersey, M.D.....	Traveling Expense .....	Travel Expense .....	2.40
10-15	3400	5346	M. E. Barnes, M.D.....	Radio Talks .....	Radio Talks .....	5.25
10-15	3401	5347	J. F. Edwards, M.D.....	Radio Talks .....	Radio Talks .....	6.00
10-15	3402	5348	Oliver S. Ormsby, M.D.....	Traveling Expense .....	Post Graduate Course.....	13.80
10-15	3403	5349	Walter Freeman, M.D.....	Traveling Expense .....	Post Graduate Course.....	96.05
10-25	3457	5404	R. O. Hughes, M.D.....	Traveling Expense .....	Travel Expense .....	11.00
10-25	3458	5405	Cash .....	Post Cards .....	Miscellaneous Expense .....	10.00
10-25	3459	5406	Paley Rubin, M.D.....	Traveling Expense .....	Travel Expense .....	7.85
10-25	3460	5407	William F. Meugert, M.D.....	Traveling Expense .....	Post Graduate Course.....	8.37
10-25	3461	5408	P. C. Jeans, M.D.....	Traveling Expense .....	Post Graduate Course.....	8.72
11-4	3462	5403	Peirce D. Knott, M.D.....	Traveling Expense .....	Travel Expense .....	3.80
11-4	3463	5409	C. M., St. P. & P. R. R. Co.....	Travel Tickets .....	Post Graduate Course.....	17.05
11-4	3464	5410	Erwin Schmidt, M.D.....	Travel Expense .....	Post Graduate Course.....	33.08
11-4	3465	5411	Julius S. Weingart, M.D.....	Travel Expense .....	Post Graduate Course.....	32.00
11-4	3466	5412	W. A. Rohlf, M.D.....	Travel Expense .....	Travel Expense .....	5.70
11-4	3467	5413	W. E. Sanders, M.D.....	Travel Expense .....	Travel Expense .....	5.30
11-4	3468	5414	C. Van Epps, M.D.....	Travel Expense .....	Post Graduate Course.....	4.20
11-4	3469	5415	Florence Johnston, M.D.....	Travel Expense .....	Travel Expense .....	23.70
11-6	3470	5416	M. E. Barnes, M.D.....	Radio Talks .....	Cancer .....	4.00
11-6	3471	5417	James H. Mitchell, M.D.....	Travel Expense .....	Radio Talks .....	5.25
11-6	3472	5418	William P. Murphy, M.D.....	Travel Expense .....	Post Graduate Course.....	19.40
11-13	3474	5420	Bernard Fantus, M.D.....	Travel Expense .....	Post Graduate Course.....	15.00
11-13	3475	5421	Mary L. McCord.....	Travel Expense .....	Post Graduate Course.....	75.00
11-13	3476	5422	Andrew Woods, M.D.....	Travel Expense .....	Travel Expense .....	4.19
11-13	3477	5423	Grace E. Williams, M.D.....	Travel Expense .....	Post Graduate Course.....	37.27
11-13	3478	5424	E. D. Plass, M.D.....	Travel Expense .....	Travel Expense .....	6.35
11-13	3479	5425	W. H. Weik, C. R. I. & P. R. R.....	Travel Expense .....	Post Graduate Course.....	31.92
11-13	3480	5426	Andrew Wood, M.D.....	Travel Expense .....	Post Graduate Course.....	16.65
11-13	3481	5427	D. B. Phemister, M.D.....	Travel Expense .....	Travel Expense .....	12.20
11-14	3482	5428	E. M. MacEwen, M.D.....	Travel Expense .....	Post Graduate Course.....	2.30
11-14	3483	5429	Cash .....	Post Cards .....	Post Graduate Course.....	5.30
11-14	3484	5430	H. L. Van Winkle, M.D.....	Travel Expense .....	Printing and Stationery.....	10.00
11-14	3485	5431	A. W. Erskine, M.D.....	Travel Expense .....	Cancer .....	2.75
11-21	3486	5432	Jas. A. Greene, M.D.....	Travel Expense .....	Cancer .....	4.00
11-21	3487	5433	C. F. Obermann, M.D.....	Travel Expense .....	Post Graduate Course.....	10.00
11-21	3488	5334	N. L. Hersey, M.D.....	Travel Expense .....	Travel Expense .....	11.50
11-21	3489	5435	Herman J. Smith, M.D.....	Travel Expense .....	Travel Expense .....	4.20
11-21	3490	5436	R. Wesley Scott, M.D.....	Travel Expense .....	Travel Expense .....	8.60
11-26	3510	5456	Leo G. Rigler, M.D.....	Travel Expense .....	Post Graduate Course.....	55.75
11-26	3511	5457	S. D. Maiden M.D.....	Travel Expense .....	Post Graduate Course.....	21.50
11-26	3512	5458	Emerson B. Dawson, M.D.....	Travel Expense .....	Travel Expense .....	19.60
11-26	3513	5459	Charlotte Fisk, M.D.....	Travel Expense .....	Travel Expense .....	4.00
11-26	3514	5460	H. E. Stroy, M.D.....	Travel Expense .....	Travel Expense .....	2.90
11-26	3515	5461	Fred Moore, M.D.....	Travel Expense .....	Travel Expense .....	19.40
12-2	3517	5462	E. E. Shaw, M.D.....	Travel Expense .....	Travel Expense .....	23.80
12-2	3518	5463	J. D. Boyd, M.D.....	Travel Expense .....	Travel Expense .....	15.35
12-2	3519	5464	John C. Parsons, M.D.....	Travel Expense .....	Post Graduate Expense.....	7.77
12-2	3520	5465	D. J. Glomset, M.D.....	Travel Expense .....	Travel Expense .....	1.50
12-2	3521	5466	E. D. Plass, M.D.....	Travel Expense .....	Post Graduate Expense.....	98.05
12-2	3522	5467	H. M. Kornis, M.D.....	Travel Expense .....	Travel Expense .....	5.30
12-9	3523	5469	R. A. Stewart, M.D.....	Travel Expense .....	Post Graduate Expense.....	3.00
12-9	3524	5470	Eastman Kodak Stores, Inc.....	Miscellaneous .....	Travel Expense .....	7.00
12-9	3525	5471	W. D. Paul M.D.....	Meals and Photographs.....	Miscellaneous .....	2.50
12-9	3526	5472	L. R. Woodward, M.D.....	Travel Expense .....	Post Graduate Course.....	3.87
12-11	3527	5473	Cash .....	Post Cards .....	Travel Expense .....	44.95
12-11	3528	5474	H. Dabney Kerr, M.D.....	Meals .....	Printing and Stationery.....	12.64
12-27	3538	5484	Richard B. Hull.....	Broadcasting .....	Post Graduate Expense.....	4.65
12-27	3539	5485	S. D. Maiden, M.D.....	Traveling Expense .....	Radio Talks .....	6.00
12-27	3540	5486	John H. Peck, M.D.....	Travel Expense .....	Travel Expense .....	10.85
12-27	3541	5487	H. L. Beye, M.D.....	Travel Expense .....	Travel Expense .....	7.61
12-27	3542	5488	E. D. Plass, M.D.....	Travel Expense .....	Post Graduate Expense.....	27.25
12-27	3543	5489	F. A. Hennessy, M.D.....	Travel Expense .....	Travel Expense .....	13.50
12-27	3544	5490	F. R. Peterson, M.D.....	Travel Expense .....	Travel Expense .....	12.50
12-27	3545	5491	Owen H. Wangenstein, M.D.....	Travel Expense .....	Post Graduate Expense.....	15.79
12-27	3546	5492	E. M. Myers, M.D.....	Travel Expense .....	Post Graduate Expense.....	18.20
12-27	3547	5493	Fred M. Smith, M.D.....	Travel Expense .....	Travel Expense .....	3.00
12-27	3548	5494	Vernon C. David, M.D.....	Travel Expense .....	Post Graduate Expense.....	10.50
12-27	3549	5495	Ernest E. Irons M.D.....	Travel Expense .....	Post Graduate Expense.....	10.91
12-27	3550	5496	D. M. Lierle, M.D.....	Travel Expense .....	Post Graduate Expense.....	10.65
12-27	3551	5497	C. A. Boice, M.D.....	Travel Expense .....	Post Graduate Course.....	9.50
12-27	3552	5498	Burkett-Underraff Motor Co.....	Transportation .....	Travel Expense .....	3.10
12-27	3553	5499	Arthur Steindler, M.D.....	Travel Expense .....	Post Graduate Expense.....	502.32
12-28	3554	5500	Chicago Rock Island & P. R. R.....	Travel Expense .....	Post Graduate Expense.....	8.75
12-28	3555	5501	W. F. Butth & Company.....	Handbooks .....	Post Graduate Expense.....	15.45
12-28	3556	5502	Leo G. Rigler, M.D.....	Honorarium—Newton .....	Printing and Stationery.....	75.00
12-28	3557	5503	Harold L. Brereton, M.D.....	Travel Expense .....	Post Graduate Course.....	25.00
					Travel Expense .....	31.80

TOTAL.....\$ 3,771.67

President Burcham: The report of the Board of Trustees. Does any member of the Board of Trustees care to make the report?

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### REPORT OF THE BOARD OF TRUSTEES

House of Delegates, Iowa State Medical Society:

The annual report of your Board of Trustees is herewith presented with a mingled feeling of satisfaction and appreciation. Despite unstable economic conditions which disturb, and social unrest which threatens, causing the most steadfast to falter and become fearful of the future of our professional life, it is most gratifying to bring, for your consideration, the record of our transactions, which indicates a prosperous financial condition of our Society. Furthermore, observation of the year's work will reveal increased departmental activities; increased zeal in special committees' work; proposals for new plans, laws and regulations for the education and protection of its members.

In our efforts to bring these activities into realities by affording financial and moral support, we have had the most generous cooperation and loyal support from officers and committee chairmen and members, for which they have our grateful acknowledgment. While these expanding activities have increased the expenses very materially, every department of endeavor has been amply financed.

No less significant than an excellent financial situation, is the fact that not only was every transaction between the Board, the officers, the departmental chairmen, and various standing and special committees, characterized by earnestness but also without discord. This evidence of harmony and unselfish cooperation speaks volumes for the stability and perpetuity of our Society.

It is well that this spirit pervades our membership in such a generous measure, for there is an ever increasing conviction that organized medicine is being assailed on every hand by many forces—lay, commercial and political. It must be quite evident to anyone who has studied the trend of the times, that "social evolution" is in the making; that the position of our profession today is none too secure. Indeed, our position is precarious if we relax our efforts to maintain high ethical and scientific standards and to keep our interests mutual, unselfish and well guarded. Our duty is to display, at all times, adequate sensitiveness to these new social values and adequate statesmanship to meet these insidious forces in politics which threaten our very existence.

Mindful of the many perplexing and serious problems which lie before us, it is reassuring indeed to the Board of Trustees in our efforts to give ample financial support and at the same time keep within the bonds of financial security, to have the hearty cooperation and valued advice of those who are responsible for the varied activities of the society.

An analysis of the Auditor's Report will reveal that not only have our varied departmental activities been encouraged by generous financial support after joint consideration between the Board of Trustees and the chairmen of the various committees, but that this has been done within budget estimates. This could not have been done in these past few years without the most careful economical planning and adjusting of income and expenditures.

We dare not close our eyes to the fact that the future threatens to be a turbulent one for our organized interests and that implies increased expenditure of funds, not infrequently for unanticipated emergencies. Such emergency demands as occur, for example, during sessions of the legislature, while anticipated to a reasonable degree in the budget, may require drawing on our reserve, one of the exigencies for which it was created. We must not only hold fast to what we have rightfully and equably gained, but must protect our personal and organized interests from future efforts to socialize us and thus destroy that intimate and vital relation between patient and physician, so necessary to the life and growth of our profession.

To this end we recommend that there be no reduction in the annual dues nor any radical measure adopted that will permit a dissipation of our surplus by the abolition of our annual dues for a period of years. It is our conviction that such an action would be economically unsound and one which would render us financially helpless against unforeseen legal actions such as malpractice suits and other litigations or for legal defense against pernicious legislative proposals. It is our belief also that the rank and file of our membership are so appreciative of the educational benefits received through the Speakers Bureau, the scientific, yet practical postgraduate courses, district meetings, University extension lectures and clinics, educational programs on socialized medicine and medical economics, our outstanding medical journal and the protection afforded the individual member, that no one will raise a dissenting voice against the present dues, even though it may mean, in some cases, a personal financial sacrifice.

We are enthusiastic in our commendation of our budget system because it has meant, since its adoption, a balanced budget. The advantages, in brief, are that a close scrutiny of every departmental expenditure is possible; that many unforeseen emergency demands can be provided for and unwarranted, or excessive expenditure of funds by any department can be avoided. It has been the consistent policy of the Board of Trustees to meet in joint session with the Council and the various committees, when so desired, in order to provide liberally and equably in the budget for the departmental activities. We, therefore, urge every department to plan amply in their requisitions for their yearly expenditures, that there may be no embarrassment for lack of funds. Indeed it is our impression that some committees should spend more money, provided it is done commensurate with increased interest and efficiency.



While your Board of Trustees is in agreement regarding the continuance of present activities and favors the extension of even greater ones, we would, with all deference to their judgment, interpolate as a word of caution to the members of the House of Delegates, the enthusiastic endorsement of measures without due consideration of the expenditure which such legislation may require, for such acts could very readily lead to the criticism of the unjustifiable prodigality of funds. The problem of maintaining a balanced budget is therefore a vital one, the solution of which should be given serious thought by every delegate, in every measure under consideration by the House of Delegates.

With pride we recognize in our JOURNAL a superior publication, one of the outstanding state medical society publications of the country. This recognition is substantiated by the favorable consideration by increasing numbers of advertisers, local, state and national; as well by editorial comment and the incorporation of scientific excerpts by other well known journals. The constant endeavor of the publishing committee and the editor is to provide not only scientific articles of literary merit and practical application, but also, through special feature pages, to bring every month interesting, newsy material for the busy practitioner.

The central office personnel is exceptionally efficient, having been by education and training especially fitted for the varied and exacting duties of this office. They have been loyal to the officers of the Society, interested in their work and render a type of service impossible without long experience. This office is your office; your problems, your inquiries and your needs will be cheerfully and capably considered.

A detailed account of our financial transactions seems unwarranted in this report inasmuch as every item of disbursement and receipts has been printed elsewhere in this Handbook over the signature of Widdup & Company, Certified Accountants. It is with a feeling of warranted satisfaction that we can report every transaction which has been directed by the House of Delegates necessitating our endorsement. All such transactions have been conscientiously considered by your Board of Trustees and every worthy measure heartily endorsed and amply supported without the curtailment of departmental achievement and without financial loss. Our membership has increased, interest in medical affairs taken on new life, friendliness fostered, favorable legislation enacted, ambitions aroused, protection afforded, cooperation given and services rendered by enthusiastic district meetings; symposia on socialized medicine; programs on medical economics and legislative matters; superior postgraduate courses; county unit programs; public meetings for laymen on subjects touching public and personal health, and disease prevention. Moreover, all these gainful issues have been accomplished within the limits of a balanced budget!

With few exceptions the activities of the various

committees have been unusually energetic and effective. We commend their work, stress the great need of continued efforts, and recommend even greater activities in the future.

We are not unmindful of the thoughtful consideration the House of Delegates has given in the past to proposed and enacted measures. Every transaction that has come before it for decision has been discussed and acted upon without prejudice and with the single purpose of increasing the strength, the efficiency and the growth of our Society without imposing executive demands on the Board of Trustees for their accomplishment, which would involve financial loss and ultimate insecurity.

With a deep sense of gratitude for loyalty and cooperation from the highest office to the humblest worker in the ranks; of profound satisfaction in the knowledge of a growing membership, increased activities, extended protection and education for the individual member, enlarged opportunities for the ambitious and a financially sound organization; with abiding faith that the principles upon which our great Society was founded, will endure as an impregnable fortress against the insidious forces from without which would destroy; and finally, with the supreme joy of serving, we submit our annual report.

Oliver J. Fay, Chairman  
John I. Marker  
Edward M. Myers

Dr. Fay: Mr. President, I move that the report be accepted.

President Burcham: It has been moved and seconded that the report of the Board of Trustees as printed in the Handbook be accepted. Is there any discussion?

*The question was called for, put to a vote and carried.*

President Burcham: Next is the report of the Council. Is the Council ready to report yet? I think the Council is having a meeting, and we will probably have to delay that report at the present time.

Report of the Delegates to the American Medical Association. Is there any other statement that any of the members of that committee wish to make at this time? Is any member of the committee here?

Dr. Moore: The report of the committee was published in the October JOURNAL. I have nothing additional to report; perhaps the other delegates have.

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## REPORT OF DELEGATES TO THE AMERICAN MEDICAL ASSOCIATION

These reports were published in the October, 1935, issue of the JOURNAL OF THE IOWA STATE MEDICAL SOCIETY. Members can refer to this JOURNAL for the details of their reports. It was felt that the members of the Society would profit more from the reports if they were published soon after the delegates had attended the sessions of the House of Delegates of the American Medical Association.

President Burcham: Will someone move the acceptance of the report?

Dr. Thornton: I *move* that the report as printed in the JOURNAL be accepted.

*The motion was put to a vote and carried.*

President Burcham: Reports of the Standing Committees of the House of Delegates. Committee on Constitution and By-Laws. Is Dr. Brock here?

Dr. Brock: Mr. President, the Committee on Constitution and By-Laws is ready to report but, as a favor to that Committee, I am asking the Chair to postpone this report until we get down to new business or after the memorials and communications, if you will kindly do that.

President Burcham: If there are no objections, I will so rule.

President Burcham: Committee on Finance, Ernest C. McClure of Bussey, Chairman. Is any other member of the Finance Committee here? Do you want to accept that report as published in the Handbook?

#### REPORT OF THE FINANCE COMMITTEE

A meeting of the Finance Committee was held in the central office of the State Society on March 3, 1936. All members of the committee were present.

Two checks which were outstanding at the time the 1935 report of the committee was made, had in the meantime been cleared and were accounted for.

The committee reviewed the audit for the fiscal year 1935, including all bills with their corresponding orders and checks. Fifty-eight checks were outstanding on December 31, 1935. These were listed and filed to facilitate the 1935 audit. At the time of the committee meeting, all but two of these outstanding checks had been cleared and were accounted for. The committee voted to accept the 1935 audit prepared by Mr. Mills of Widdup and Company.

Notes for 1932, 1933, 1934 and 1935 dues in the amount of \$639.50 are being held by the secretary. Of this total, \$68.00 is collectible for 1932 dues, \$224.00 for 1933 dues, \$227.50 for 1934 dues and \$120.00 for 1935 dues.

Ernest C. McClure, Chairman  
A. S. Bowers  
L. L. Carr

Dr. Moore: I *move* that it be accepted.

*The motion was regularly carried and the report of the Finance Committee as published in the Handbook was accepted.*

President Burcham: Committee on Medical Economics, Dr. Thomas F. Thornton, Waterloo, Chairman.

#### REPORT OF THE COMMITTEE ON MEDICAL ECONOMICS

As reported to the House of Delegates last spring, the Committee on Medical Economics of the Iowa State Medical Society was active during the early months of 1935 in working out a satisfactory medical relief plan, in conjunction with the Council, which was to be administered by the Iowa Emergency Relief Administration, through the use of federal and

state funds. Several meetings were held with representatives of the three groups present. Plans were revised until at last one was drawn up which seemed satisfactory to all three groups. The Council and the Medical Economics Committee approved the plan and recommended it to those counties whose own funds were exhausted and who would have to use state and federal funds for medical care. The plan was promoted by the Emergency Relief Administration throughout the remainder of the spring and summer months. Varying reports as to the success of the plan were received. The set up had been designed to insure a fee, which, while very low, would at least repay the doctors for the cost of their services and also to keep the control of the problem of medical care in the hands of the medical profession. When it became apparent that this medical relief plan was not accomplishing either of these two goals, and after it had been given several months of trial, the official bodies of the Iowa State Medical Society could no longer conscientiously approve it. Consequently, the council withdrew its approval at its fall meeting, in which action the committee on Medical Economics concurred.

In going over the fee bill adopted by the State Society in connection with drawing up the medical relief plan, the Medical Economics Committee made one change which has not been referred to the House of Delegates up to this time, viz., paracentesis of ear drum, \$10.00. Formerly this fee had been set at \$3.00 but it was the opinion of many eye, ear, nose and throat men and the members of the committee that this was too low in consideration of the responsibility involved in such procedures.

Prior to the last meeting of the House of Delegates, the Committee on Medical Economics had approved a collection agency operating in Iowa under the name of the National Discount and Audit Company. After approving an agency, the committee is ever alert for reports as to satisfactory or unfavorable experience. Further investigations regarding the National Discount and Audit Company led the committee to feel that it did not come up to the standards of collection agencies approved by the society and the approval of the committee was withdrawn.

The committee met in the central office on November 4, 1935, for the purpose of examining the records and investigating the references received at the office relative to the Marathon Finance Corporation, which had sought the approval of the State Society. Representatives of the company were at the meeting with their files. After reviewing all the data which had been collected, the committee unanimously agreed that its approval should be extended to the Marathon Finance Corporation to work in Iowa.

The chairman of the committee attended a meeting at Iowa City on November 9, with Doctor A. Craig Baird of the University, Doctor Evon Walker of Ottumwa, chairman of the Committee on Public Relations, and the members of the Speakers Bureau Committee. The matter of medical economics and the program for the high school debates on the sub-



ject of "Socialized Medicine" were discussed at length. The handbook on this subject prepared by the Minnesota State Medical Society was approved as material to be sent to the high schools in this state who were debating this question.

At the request of the chairman, Dr. James C. Hill, who has made quite an extensive study of the question of socialized medicine, prepared an article on the subject which was mimeographed and distributed to those schools debating that question.

T. F. Thornton, Chairman  
James C. Donahue  
James C. Hill

Dr. Thornton: Mr. President, I *move* the acceptance of the report as published in the Handbook. I wish, in addition, to add that in view of the fact that the activities of this Committee are increasing and will probably continue to do so in the future, the membership of this Committee be increased to five instead of three. I make that motion also.

President Burcham: That will require an amendment to the By-Laws, because this Committee is designated as three members.

Dr. Thornton: I will first *move* the adoption, then, of the report as published on page 42 of the Handbook.

President Burcham: The question is on the adoption of the report, not on the additional members of the Committee.

*The question was called for, put to a vote and carried.*

Dr. Thornton: I wish to *move*, Mr. President, that the By-Laws be amended so that the Committee on Medical Economics be composed of five members instead of three.

President Burcham: That constitutes a change in the By-Laws and will have to lay over one day, so it will have to be acted upon Friday.

Committee on Medical Education and Hospitals, Dr. Erskine, Chairman. I think Dr. Erskine is in the Council meeting. Is any other member of the Committee here? Will someone make a motion that we accept the report?

#### COMMITTEE ON MEDICAL EDUCATION AND HOSPITALS

During the past year no important problem has arisen which has required the attention of the Committee.

Arthur W. Erskine, Chairman

Dr. Downing: I *move* that the report be accepted.

*The motion was put to a vote and carried.*

President Burcham: Medico-Legal Committee, Dr. Frank Ely of Des Moines, Chairman.

#### REPORT OF THE MEDICO-LEGAL COMMITTEE

The Medico-Legal Committee has little to report. Most of the malpractice suits which have been instigated against members of the State Society during the past year have been taken care of by commercial insurance companies.

The attention of our Committee has been called to the possibility of legal trouble arising out of the commitment of insane persons to private mental hospitals or sanatoria. Some investigation has been made concerning the legal situation which this invokes but as yet available information has not shown a satisfactory course of procedure because it is difficult to formulate a law by means of which a patient may be legally committed to a privately owned institution without obligating the state or county in a manner unsatisfactory to such territorial divisions or subdivisions. The state and counties have their prescribed legal methods for management of the insane and have little interest in the existence or nonexistence of private institutions for the care of mental cases. To those especially interested in this matter, it may be said that your Committee will continue its efforts to solve this problem by promoting suitable legislation as soon as a feasible plan can be determined.

F. A. Ely, Chairman

Dr. Ely: Mr. President, I *move* the acceptance of the report in the Handbook. If there are any questions that anybody would like to ask in regard to it, I would be glad to answer them. We have had very little to do. There were only two or three new cases that the Society has been called upon to defend in the past year. We have the members so well educated on commercial insurance that the burden has not fallen very heavily on us.

President Burcham: Does anyone want to ask the doctor any questions about this matter?

*The question was called for, put to a vote and carried.*

President Burcham: Is Dr. Ellyson here? (Absent) Will you stand please, while the Secretary reads the list of departed members and remain standing in silent reverence to our departed members until the sound of the gavel?

Secretary Parker read the list of departed members contained on page 43 of the Handbook, and the members stood in silent tribute.

#### REPORT OF THE COMMITTEE ON NECROLOGY

House of Delegates, Iowa State Medical Society:

During the year of 1935 death has come to forty-seven of our colleagues. The youngest was twenty-nine years of age; the oldest, ninety-two. Nineteen of those who died were sixty years of age or younger and ten were fifty years of age or younger.

Twenty-two of these physicians died of heart disease; seven of cancer; seven of apoplexy; five of pneumonia; three of anemia—two of pernicious anemia, one of aplastic anemia.

One death was accidental. There was one death each from x-ray burns, leukemia, sclerosis of the liver.

May we stand in a quiet memorial to our departed colleagues, while their names are read?

Felix A. Hennessy, Chairman  
C. W. Ellyson, Secretary

Allen, Edward C.....	Wayland .....	63	May 18, 1935	Heart
Alt, Roy C.....	Cedar Rapids.....	48	Sept. 11, 1935	Leukemia
Arent, Adolph.....	Callender .....	61	July 10, 1935	Cancer
Bailey, Wm. W.....	Davenport .....	69	Aug. 6, 1935	Heart
Beitenman, Milton E.....	Cascade .....	38	Oct. 18, 1935	Automobile accident
Bennett, John C.....	Waterloo .....	32	Dec. 10, 1935	Pneumonia
Bradley, Harry M.....	Manchester .....	66	Aug. 11, 1935	
Brown, Foster V.....	Sioux City .....	56	Feb. 14, 1935	Sclerosis of the liver
Buxton, Otho C., Sr.....	Webster City .....	78	Sept. 17, 1935	Heart
Byers, Henry V.....	Newton .....	86	Jan. 5, 1935	Heart
Campbell, Howard E.....	Anita .....	71	April 23, 1935	Aplastic anemia
Devine, John A.....	Bancroft .....	55	Dec. 10, 1935	Pneumonia
Devine, Winfield S.....	Marshalltown .....	81	Dec. 11, 1935	Heart
Engle, Perry .....	Newton .....	92	June 29, 1935	Heart
English, Harry H.....	Conesville .....	72	April 2, 1935	Heart
Findley, Park A.....	Des Moines.....	60	June 13, 1935	Heart
Foxworthy, Oliver W.....	Leon .....	80	Oct. 18, 1935	Heart
Goodale, Leon H.....	Nashua .....	72	Dec. 5, 1935	Apoplexy
Graham, Dell E.....	Ottumwa .....	58	Sept. 22, 1935	Heart
Haden, Eugene B.....	Panora .....	69	Dec. 24, 1935	Heart
Harris, William.....	Mvstic .....	50	July 17, 1935	Apoplexy
Herrick, Rupert C.....	Gilmore City .....	50	Nov. 22, 1935	Heart
Hotchkiss, Mary M. N.....	Webster City .....	62	Dec. 10, 1935	Apoplexy
Jackson, Taylor R.....	Chariton .....	65	Sept. 12, 1935	Heart
Jordan, Marion S.....	Clinton .....	70	April 30, 1935	Heart
Kepler, John C.....	Kirkville .....	57	Feb. 17, 1935	Apoplexy
Liesman, Bismark.....	Kellogg .....	68	Jan. 18, 1935	Angina pectoris
Mangun, Harold V.....	Ackley .....	35	Oct. 29, 1935	Pneumonia
Meyers, Jacob F.....	Elliott .....	56	Feb. 23, 1935	Cancer
Moon, Roy .....	Attica .....	63	Nov. 24, 1935	Heart
Morse, John F.....	Nevada .....	63	Aug. 8, 1935	Apoplexy
Niemack, Julius .....	Charles City.....	75	May 5, 1935	Cerebral thrombosis
Osborn, Wm. S.....	Osage .....	57	Sept. 4, 1935	
Parker, Garner F.....	Pocahontas .....	49	Sept. 28, 1935	X-ray burns
Parker, Ralph H.....	Des Moines.....	62	Nov. 13, 1935	Cancer
Payne, Harry C.....	Pella .....	64	June 23, 1935	Cancer
Peppers, John Lewis.....	Webster City.....	64	Jan. 20, 1935	Heart
Rich, Louis P.....	Fredericksburg .....	59	May 5, 1935	Angina pectoris
Schooley, Alfred H.....	Terril .....	64	Mar. 18, 1935	Cancer
Smith, Alton LeRoy.....	Woodward .....	29	Jan. 21, 1935	Streptococcic infection
Spooner, Alexander L.....	Luverne .....	74	June 1, 1935	Pneumonia
Stech, James W.....	Council Bluffs .....	46	Aug. 22, 1935	Heart
Stephenson, Charles N.....	Milton .....	50	Dec. 19, 1935	Pneumonia
Stevenson, William.....	Des Moines.....	77	Sept. 15, 1935	Pernicious anemia
Traverse, Isaac W.....	Ft. Madison .....	62	April 12, 1935	Apoplexy
Wallace, Charles M.....	Winterset .....	64	Jan. 11, 1935	Heart
Will, Frank Arthur.....	Des Moines.....	48	Jan. 21, 1935	Heart

President Burcham: Committee on Publication, Dr. Simmons, Editor. Is any other member of the Committee here? Will somebody move the acceptance of the report?

#### REPORT OF THE COMMITTEE ON PUBLICATION

To the House of Delegates, Iowa State Medical Society:

Since the annual session of 1935, the twelve monthly issues of the JOURNAL have borne testimony

of the activities of the Committee on Publications, and these JOURNALS constitute a detailed report. Due to the adoption of a program at the annual session which permits participation by a larger group of members and guests, a correspondingly larger number of papers from this source has been reviewed by your Committee. With but few exceptions, these papers have been reproduced in the JOURNAL; this, together with the increasing number of worthwhile contributions from many other sources, has required an increase in the number of pages in many issues of the JOURNALS during the year.



Agreeable to an established editorial policy and in full appreciation of the official character of our publication as the house organ for our State Society, official announcements, state and county society activities and the work of our several committees have been prominent displays. We have continued to stress the case history type of presentation and through the cooperation of the College Hospital staff at Iowa City, we have been able to add an additional section devoted to case reports from this source.

While national advertising has not returned to the level of some four or five years ago, solicitation among local advertisers has increased revenue from this source so that we can look with pride upon our financial showing for the year. Since the demand for advertising space in the JOURNAL in its final analysis must depend upon the demonstrable results to the advertiser in increased patronage from the members of our Society, we urgently solicit the cooperation of every reader in demonstrating the merits of advertising displays carried in our pages.

Your Committee would not only solicit your fullest cooperation in this regard, but we would also urge and invite your full cooperation with the Committee in making the JOURNAL a worthwhile house organ reflecting scientific progress, as well as organizational advancement.

R. R. Simmons, Chairman

Dr. Edward M. Myers: As a member of the Committee, I move the acceptance of the report.

*The motion was put to a vote and carried.*

President Burcham: Committee on Public Policy and Legislation. Do you have anything to say, Dr. Moore?

#### REPORT OF THE COMMITTEE ON PUBLIC POLICY AND LEGISLATION

To the House of Delegates:

At the last annual meeting the Legislative Committee was given a special commission when the House of Delegates passed the following resolution which had been presented by the Committee on Professional Relations:

"Resolved: That three members of the Legislative Committee of the Iowa State Medical Society shall be empowered to become part of an advisory council to be known as the Iowa State Interprofessional Health Association. This body will consist of three members of the legislative committees of each of the allied professions—veterinarians, nurses, dentists, pharmacists and physicians. The purpose of this Association is to promote friendly relations and cooperation between these various professions and to protect the public in matters pertaining to health."

In accordance with your action, the Legislative Committee met with representatives of the allied professions in January, 1936. The following members of the Iowa State Medical Society attended this meeting in an advisory capacity: Thomas A. Burcham, M.D., President; Robert L. Parker, M.D., Secretary; and E. J. Watson, M.D., Chairman, Committee on Professional Relations. Other officers were invited

but could not attend because of adverse weather conditions.

Official and ex-officio representatives of each of the five professional groups were present. Representatives of each group were called upon to voice their opinion as to the type of organization which should be developed. The import of all the discussions was very similar. All favored the organization of an interprofessional group and felt that much good could be accomplished through such an organization. All expressed the opinion that if an organization of this kind were too binding and too tightly knit together, it might fail its own purpose. Too highly centralized an organization might cause dissension between the professions, embarrass the member groups and eventually cause the breakdown of the interprofessional organization. With a loosely knit organization, each group would still be free to develop in its own way any projects of particular interest to its own members and to work with the other groups in matters of mutual concern.

From among the official representatives present, a Committee on Permanent Organization and one on Constitution and By-Laws were appointed. After conferences of these two committees, the Committee on Permanent Organization reported in favor of the formation of an interprofessional organization of the professions of medicine, dentistry, veterinary medicine, nursing and pharmacy. This report was unanimously adopted by the delegates.

The Iowa Interprofessional Association was organized and the following constitution was adopted:

#### CONSTITUTION OF THE IOWA INTERPROFESSIONAL ASSOCIATION

##### Article I

###### Name

Section 1. The name of this organization shall be the Iowa Interprofessional Association.

##### Article II

###### Purposes

Section 1. The purpose of this organization shall be to federate the professional associations of the state to carry out the following objects:

- (a) To provide a clearing house for the interchange of information respecting the plans and methods of organization developed by the various member societies.
- (b) To act as a bureau of research and information to study and report on various civic problems in the solution of which the technical knowledge of professional people is of value.
- (c) To educate the public with respect to the aims of the member professions and the value of high-grade professional service.
- (d) To cooperate in securing and maintaining legal and ethical standards of character and education requisite to the rendering of high-grade professional service.
- (e) To cooperate with the legal authorities in the enforcement of professional laws.
- (f) To cooperate in promoting plans for the advancement of the material welfare of the member professions.
- (g) To promote the organization of county and district federations for the carrying out of the objects outlined above.

## Article III

## Membership

Section 1. The membership of this organization shall be composed of delegates from its various member societies.

Section 2. This organization shall be composed of delegates of the Iowa State Dental Society, the Iowa Veterinary Medical Association, the Iowa Pharmaceutical Association, the Iowa State Association of Registered Nurses and the Iowa State Medical Society.

Section 3. Each member organization shall be entitled to three delegates to be selected by it, in any manner satisfactory to the individual society or association.

## Article IV

## Meetings

Section 1. Regular meetings shall be held semi-annually in June and December at such times and places as may be determined by the Executive Council.

Section 2. Special meetings may be called by the President acting on his own initiative or at the request of any of the member organizations. A call for a special meeting shall state in writing the object of such meeting at which no business except that stated in the call shall be transacted.

Section 3. Delegates representing three of the member organizations shall constitute a quorum for the transaction of business.

Section 4. Each of the five coordinating societies may designate three representatives who shall be ex-officio members of this Association.

## Article V

## Policies

Section 1. All questions of policy not defined in Article II shall be determined by a majority vote of the delegates present. All questions of policy may be referred to the individual member organizations for a referendum vote.

## Article VI

## Executive Council

Section 1. The executive functions of this organization shall be vested in an Executive Council consisting of one counselor from each member society to be elected by the delegates from among their number to serve for a term of one year. Three of the councilors shall constitute a quorum for the transaction of business.

Section 2. The executive councilors shall elect annually from their own number a president, a vice president, and a secretary-treasurer, whose duties shall be those which usually pertain to their respective offices.

Section 3. The Executive Council shall meet upon the call of the president acting upon his own initiative or at the request of any three councilors.

## Article VII

## Elections

Section 1. Elections shall be held annually at the June meeting except that the first election under this Constitution may be held at the meeting immediately following its adoption.

Section 2. Vacancies in the Executive Council shall be filled by election at the first regular meeting following their occurrence.

## Article VIII

## Committees

Section 1. Committees necessary to carry out the purposes of this organization may be created from time to time by the Executive Council or by the general body of delegates.

Section 2. Committee members shall be appointed by the President with the approval of the Executive Council.

## Article IX

## Dues

Section 1. The annual dues of each member organization shall be \$10.00 for the first year. Thereafter the amount will be determined by the Executive Council.

Section 2. Annual dues shall be due and payable on January 2 of each year.

## Article X

## Rules of Order

Section 1. The proceedings of this organization shall be in parliamentary form as set forth in Robert's "Rules of Order."

## Article XI

## Amendments

Section 1. This constitution may be amended at any regular meeting by a two-thirds vote provided the proposed amendments have been read at the previous meeting.

In accordance with the spirit of this action, the Committee on Professional Relations of our State Society has communicated with the county societies and is urging local interprofessional organizations.

The next specific steps for the House of Delegates to take are:

1. To name or provide for appointment of representatives from this Society to the Iowa Interprofessional Association.

2. To recommend the use of such funds as it may deem proper to the support of this organization.

3. To issue such instructions to its representatives as it may desire.

The Legislative Committee emphasizes its belief in the value of interprofessional organization for legislative purposes. It is the firm conviction of your committee that local interprofessional organizations are of far greater influence than the state organization. The latter is necessary for the proper development of local organizations but would be powerless without the influence of local interest and activity.

\* \* \*

The Basic Science Law became effective last July 4. The Board consists of excellent personnel and is well organized. As a non-sectarian educational board, it promises to contribute much to the elevation of standards of the practice of the healing arts in Iowa.

Its functional development has not been free of interference. At present there is a temporary injunction which prohibits the Board from issuing any certificates except by examination. This had its origin with colleges which are not members of the North Central Association of Secondary Schools and



Colleges. A word of explanation regarding certificates to those in practice preceding July 4, 1935, may not be amiss. Your committee is advised that the Basic Science Board received numerous requests for certificates stating their exemption. After counsel with the office of the Attorney General, the Board offered such certificates for a fee of two dollars. You are familiar with this. There has been some misunderstanding among licentiates as to whether these certificates are mandatory or optional. On account of this and the injunction referred to above, issuance of these certificates is postponed at the time of writing this report. The hearing for consideration of the injunction will probably be held at an early date; meanwhile, the Attorney General's office is advising the Board as to the best method of procedure. These difficulties will undoubtedly be adjusted in satisfactory manner eventually. They do not find fault with the fundamental purpose of the law. They are concerned with details of administration. Every basic science board in existence has had to fight for its maintenance and every one has been held intact.

The coming state legislative session (1937) is likely to see many measures introduced in which our profession will be interested. Our membership should be interested individually and as county units in studying all phases of social security, health insurance and state medicine. Attitudes of all candidates for state legislature should be known as well as possible. Obviously no person can anticipate all the questions which may arise in a legislative session. Is there a general statement or question which can be given to candidates to ascertain their attitude on medical questions? There is. The pronouncement of the House of Delegates of the American Medical Association in February, 1935, constitutes an excellent statement. Every doctor should be familiar with it. A candidate who will oppose legislation in conflict with these points is a safe man from the point of view of medical legislation. The ten points are as follows:

First: All features of medical service in any method of medical practice should be under the control of the medical profession. No other body or individual is legally or educationally equipped to exercise such control.

Second: No third party must be permitted to come between the patient and his physician in any medical relation. All responsibility for the character of medical service must be borne by the profession.

Third: Patients must have absolute freedom to choose a legally qualified doctor of medicine who will serve them from among all those qualified to practice and who are willing to give service.

Fourth: The method of giving the service must retain a permanent, confidential relation between the patient and a "family physician." This relation must be the fundamental and dominating feature of any system.

Fifth: All medical phases of all institutions involved in the medical service should be under professional control, it being understood that hospital

service and medical service should be considered separately. These institutions are but expansions of the equipment of the physician. He is the only one whom the laws of all nations recognize as competent to use them in the delivery of service. The medical profession alone can determine the adequacy and character of such institutions. Their value depends on their operation according to medical standards.

Sixth: However the cost of medical service may be distributed, the immediate cost should be borne by the patient if able to pay at the time the service is rendered. ("Immediate" in this connection is here interpreted as meaning that at least a part of the medical service should be paid for by the patient at the time the service is rendered.)

Seventh: Medical service must have no connection with any cash benefits.

Eighth: Any form of medical service should include within its scope all legally qualified doctors of medicine of the locality covered by its operation who wish to give service under the conditions established.

Nine: Systems for the relief of low income classes should be limited strictly to those below the "comfort level" standard of incomes.

Tenth: There should be no restrictions on treatment or prescribing not formulated and enforced by the organized medical profession.

Your Committee will have additional information for the House of Delegates by the time of the annual meeting.

Respectfully submitted,

Fred Moore, Chairman  
R. D. Bernard  
S. W. Corbin

Dr. Moore: I am sure you would think the millennium had come if the Legislative Committee did not have anything to say.

I want to call attention, Mr. President, to a certain phase of the report which I believe involves a matter that comes under the head of new business. Then I wish to discuss very briefly certain features pertaining to legislative interests which are not included in the report.

The report is on page 44. That to which I particularly want to call your attention is on pages 45 and 46, pertaining to the proposed Interprofessional Association.

All of you will recall that at the last meeting of the House of Delegates the members of the Legislative Committee were appointed to meet with representatives of the other state associations for the purpose of forming an Interprofessional Association. That has been done.

The Constitution which was adopted by this interprofessional group calls for five members of each state society. This House of Delegates should now designate representatives of the Iowa State Medical Society.

The question of financial support is another point for your consideration. The third feature is to

issue such instructions or suggestions as the House of Delegates may see fit, to these who are to represent the Iowa State Medical Society in this inter-professional group.

I move that the report be accepted, and that consideration of those particular items come up under the head of new business.

*The motion was put to a vote and carried.*

Dr. Moore: It is extremely important that we take into consideration at this time the qualifications of candidates for offices in our state government. There are likely to be many phases of legislation in which we will be interested. It is very probable that we will, in the next session of the legislature, have a considerable number of bills introduced which have to do with social security. We were talking about it a great deal at the time of the last session of the legislature, but very little was introduced. At that time bills of that character were introduced in the national Congress. With the funds which have been appropriated by the national Congress for the conduct of the security act, with the funds which have been made available for the use of maternal, child hygiene, crippled children and public health, and with the old age security and all those things, we are very likely to have a good deal of legislation introduced which has some bearing upon the practice of medicine. No one can foresee just what all of those things are going to be. It would be wholly impossible, and I think rather unwise, perhaps, to ask candidates if they will be opposed to a single, particular measure which might have to do with these subjects. It seems to me that the most logical procedure is to use the ten points in medical economics which were adopted by the House of Delegates of the American Medical Association in meeting in February a year ago, and ask candidates what their attitude will be on legislation which is proposed in conflict with those ten points in medical economics.

I say put that question up to men who will understand it, and I say that in a wholly sympathetic attitude. I was quite surprised the other day when

one of the candidates for the United States Senate came to me and asked what he could do to further his candidacy and get support among the members of the medical profession. I told him that I had a lot of friends who were candidates for the United States Senate, and I would have to give them all about the same answer. I gave him a copy of the ten points to which I just referred, and asked him to look them over. I consider this man one of a very high level of intelligence. He took the copy, came back in a couple of days and said, "I don't know what this is all about."

The thing is this: In the statement of those ten points, they have not singled out one type of organization as opposed to another; they have not singled out compulsory health insurance; they have not singled out any particular type of socialized medicine, but they have tried to visualize and express in those ten points the actual things which may happen between the doctor and his patient in the conduct of his business, and then expressed those things in terms of personal relationship. It is not always easy to transfer back into corporate terms, so to speak, or terms of corporation practice, just what these individual experiences mean.

It was quite a surprise to me that that man should ask for an explanation of this. However, I presume it is only a natural thing that since we, of the medical profession, have given considerable thought to those things we take it for granted that everyone else knows what we have in mind when we refer to "socialized medicine," or "compulsory health insurance" or that "no third party should interfere in the relationship between the doctor and the patient."

It is our purpose to develop some brief explanations of these ten points and put them into your hands so that you may use them in contacting these candidates. I think it is very important that you contact your candidates for Congress and candidates for the Senate, as well as the candidates for the legislature of Iowa.

President Burcham: Reports of Special Committees of the House of Delegates. Baldrige Memorial Committee, E. M. Myers, Chairman.

## Reports of Special Committees

### REPORT OF THE BALDRIDGE MEMORIAL COMMITTEE

The Baldrige Memorial Committee met in Des Moines, May 16, 1935, and drew up rules and regulations to guide the writing and judging of theses submitted for the prize authorized by the House of Delegates at its 1935 meeting. These rules are:

1. The Award shall be known as the Baldrige Prize.
2. The prize will consist of \$50.00 in cash to be given yearly by the Iowa State Medical Society.
3. Any medical student of the State University of Iowa, who is a resident of Iowa, is eligible for the competition.

4. The prize shall be awarded for original work in medicine. This is interpreted to include both preclinical and clinical subjects.
5. Theses which are to be presented for this competition must be in the office of the Dean of the College of Medicine on or before March 15.
6. Theses must be typewritten in triplicate (double-spaced) on one side of the paper and must be submitted under a nom-de-plume which must appear on each page of the thesis and on the outside of a sealed envelope, which contains the true name, address, and class of the competitor.
7. Announcement of the prize winner will be made during the annual meeting of the Iowa State



Medical Society and the award will be presented at the regular Commencement exercises of the State University of Iowa.

8. If no thesis is deemed worthy, no award will be made.
9. If two theses of equal excellence are presented, the prize shall be divided.
10. Three judges are to be appointed by the President of the Iowa State Medical Society.
11. All theses shall become the property of the College of Medicine, but publication in a medical journal is not to be denied. The winning thesis will be published in the Journal of the Iowa State Medical Society.

E. M. Myers, Chairman  
D. J. Glomset  
E. D. Plass

Dr. Myers: Mr. President and Members of the House of Delegates: The Baldrige Memorial Committee appointed last year by Dr. Burcham met on May 16, 1935, and formulated rules and regulations governing the writing and the judging of material submitted for this prize.

These rules and regulations were then presented to the student body of the medical school of the State University at Iowa by Dr. Plass, and a copy of these rules and regulations you have before you in the Handbook.

Considering the short time available for the study and preparation by the students, the Committee was very much surprised, agreeably surprised, at the response. Four very excellent articles were presented. It was with a good deal of difficulty that the Committee arrived at the selection of the winner. However, we have made a decision, and the name of the author and the title of his thesis will be announced tomorrow night at the banquet. This winning thesis shows an extensive amount of research and study. It was logical in its reasoning and written in good diction. This latter feature the Committee considered with a good deal of criticism, because we feel that this feature of diction should be emphasized and so characterize all medical writings.

Considering the interest which has been shown on the part of these students, and the excellent quality of the material which has already been presented, the Committee is unanimous in its commendation of this Baldrige Memorial Prize as being one of the most outstanding examples of constructive work that has been made by the House of Delegates for a long time.

By stimulating these students to do real, earnest, constructive work in research and study, I think we are laying the foundation for them for successful clinical work in the future.

Speaking for the Committee, I should like, referring to the rules and regulations, authority from the House of Delegates to make a change in Article 2 of the regulations, making this article read: "The prize will consist of \$100 in cash to be given yearly by the Iowa State Medical Society."

The reason for this is very obvious to the Committee, for we feel that \$50 is not ample to defray the expense of study and research, furnishing diagrams and plates, microphotographs and so forth, which is necessary for a young student who engages in extensive research, laboratory work and study.

So, Mr. President, pending the consideration of this suggestion by the House of Delegates, I move that the report of the Baldrige Memorial Committee be adopted.

President Burcham: Dr. Myers, do you want that report amended to include \$100 instead of \$50?

Dr. Myers: Yes, I do.

President Burcham: Will somebody make that amendment?

Dr. Myers: I am not clear whether that should come under the head of new business or whether we can dispose of it at this time.

President Burcham: You can bring it up now or under new business.

Dr. Myers: I don't care which it is; I want the \$100.

President Burcham: It has been moved and seconded that we accept this report. Is there any discussion?

*The question was called for, put to a vote and carried.*

President Burcham: We will bring up under new business the question of increasing the prize from \$50 to \$100.

Committee on Child Health and Protection, Dr. McBride, Sioux City, Chairman. (Absent.) Are there any other members of the Committee here? Will somebody move that we accept the report?

## REPORT OF COMMITTEE ON CHILD HEALTH AND PROTECTION

The Committee on Child Health and Protection held a meeting at Des Moines, Sunday, September 29. This meeting was held in conjunction with the officers of the State Medical Society, i. e., Dr. Thomas A. Burcham, Dr. Oliver J. Fay, Dr. Daniel J. Glomset, and Dr. Fred Moore, and the representatives of the State Department of Health, Dr. Walter L. Bierring, Dr. J. C. Kinnaman, and Dr. F. H. Swift.

The purpose of the meeting was to discuss the recently enacted Social Security Act and to formulate a working program for its administration in Iowa.

Inasmuch as the Federal funds for public health work were to be administered by the State Department of Health, Dr. Bierring discussed Title 5 of the Act and outlined the plans the Health Department had in mind to carry out its provisions. The sections of this Act which are of special interest to the medical profession are those relating to (a) Maternal and Child Health Service, and (b) The Service for Crippled Children. The plan suggested by Dr. Bierring was discussed by all those present, and several changes were advocated.

The Committee was represented at a meeting of

the Council by Dr. Lee F. Hill, when they met in Des Moines, November 21, 1935. The Social Security Act was discussed at this meeting and relatively the same plan was presented by Dr. Bierring, as that outlined to the Committee on Child Health and Protection.

On January 22, 1935, a meeting of part of the Committee was held in Sioux City, where matters of general interest were discussed.

The Committee has been interested in the immunization program throughout the state and contacts have been made in certain localities in an effort to facilitate the program.

R. H. McBride, M.D., Chairman

Upon motion regularly made the report of the Committee on Child Health and Protection was accepted.

President Burcham: Report of the Historical Committee, Dr. Walter L. Bierring, Des Moines, Chairman.

## REPORT OF THE HISTORICAL COMMITTEE

The activities of the Committee during the past year have been concerned largely with the publication of historical data connected with the development of medical practice in the different counties and sections of the state.

The History of Medicine in Jefferson County, as prepared by Dr. James Frederick Clarke of Fairfield, was published and completed in the December, 1935 number of the Journal. It presents in interesting sequence the evolution of medical practice in this country, representing a century of medical progress; the pioneer doctor and his part in the early settlement; military service in the Civil War; the formation of the county medical society; the development of nursing and antiseptic surgery; the building of the county hospital; service in the Spanish-American and World War; and finally a complete list of the physicians who have practiced in Jefferson County since its beginning in 1836. It will be generally admitted that such a record constitutes a distinct contribution to the history of medicine in Iowa.

It is hoped to publish during the coming year similar histories of Black Hawk and Dubuque counties. These histories are now in the process of preparation.

In the December, 1935 Journal appeared the first part (1898-1905) of The History of the State Society of Iowa Medical Women, as prepared by Dr. Jeanette Dean-Throckmorton. The second and concluding part of the history (1905-1935) written by Dr. Eppie McCrae, was published in the January, 1936, issue.

The first of a series of three interesting articles on The History of Drake University Medical School by Dr. Frederick J. Smith of Milford, was published in the March, 1936 Journal, which, when completed, will form an important contribution to the history of medical education in Iowa.

The Committee is of the opinion that the time has arrived to collect and prepare for publication in book

form the historical data published in the Journal during the past five years, either as a supplement to the volume on The History of Medicine in Iowa so ably edited and published under the direction of the late Dr. D. S. Fairchild, or to incorporate the same with the more recent material collected in a separate publication.

In order to begin the publication of a history as outlined, it is requested that the Board of Trustees of the Iowa State Medical Society appropriate the sum of three hundred dollars for this purpose.

Respectfully submitted,

Walter L. Bierring, Chairman  
Frank M. Fuller  
John T. McClintock  
Tom B. Throckmorton  
Paul W. Van Metre

Dr. Bierring: Mr. Chairman, I beg to *move* the adoption of the report of this Committee as it is published in the Handbook. However, as it carries with it a recommendation to the Board of Trustees for an appropriation of \$300, I beg to say that the Committee feels the time has come to correlate these historical facts that have been published during the past five years in the JOURNAL OF THE IOWA STATE MEDICAL SOCIETY, in book form. While not a great deal can be accomplished in one year, we feel that steps can be taken for the gradual collection of data either in a separate volume or a revision of the volume published by the late Dr. Fairchild about five years ago.

I *move* the adoption of this report.

President Burcham: In regard to the recommendation calling for an appropriation of \$300, our Constitution and By-Laws states that that must first be referred to the Board of Trustees for approval.

Dr. Bierring: I will change my motion accordingly, that this report be referred to the Board of Trustees.

President Burcham: Is there a second to that motion?

*The motion was regularly seconded, put to a vote and carried.*

President Burcham: Medical Library Committee,  
Dr. Jeannette Dean-Throckmorton.

## REPORT OF THE MEDICAL LIBRARY COMMITTEE

Medical Department, Iowa State Library  
July 1, 1934 to June 30, 1935

Requests for literature.....	3,321
Pieces of literature loaned .....	14,269
Pieces of literature borrowed from other libraries..	31
Letters written .....	1,292
Cards written .....	1,337
Visitors in the Library.....(Long distance 1)	2,267
Telephone calls coming in (Long distance 1).....	666
Cards made for new acquisitions—book file.....	587
journall file .....	106
reprint file .....	2,698

3,391 3,391

Periodicals received by subscription regularly.....	139
by gift regularly.....	57

196 196



Accessioned volumes in the Library June 30, 1935.....18,527  
(Increase of 527 since July 1, 1934)

Gifts to the Library—books .....	359
journals (bound) .....	164
journals (unbound) .....	11,344
reports .....	123
transactions and proceedings .....	79
bulletins .....	12
pamphlets .....	125
announcements .....	5
programs .....	8
collected studies .....	7
reprints .....	310
index .....	3
museum exhibits (3 donors).....	7

Duplicates given to other Libraries—books .....	1
journals (bound) .....	191
journals (unbound) .....	2,866
transactions .....	53
reports .....	37
index .....	10
bulletins .....	12
studies .....	1

Jeannette Dean-Throckmorton, Librarian  
Iowa State Medical Library  
Con R. Harken, Committee Chairman

Dr. Jeannette Dean-Throckmorton: Mr. President and Members of the House of Delegates: The doctors of Iowa this past year have been very generous to the medical library. You have given me books and JOURNALS, in some cases the entire library. You ask me why I need all these old JOURNALS. The question comes in: how many cases of spontaneous rupture of the left auricle of the heart? How many cases of meningitis due to diphtheria? By the way, that case is the first case ever reported in the English language, and Iowa gets that credit. I need your old JOURNALS.

Then I have had some real money given to the Medical Library, actual money.

We are told on good authority that the love of money is the root of evil. Well, I believe you will agree with me that sometimes the lack of it can be an evil. I need more money for the medical library; I need more so that I can give you better service. The law library gets four times the amount of appropriation that the medical library does. The general library gets six times as much. I feel that you doctors deserve service equal to the background that is given to the lawyers of this state.

In order to get any money, Mr. Brigham decides how much the appropriation will be. Then he takes it up with Mr. Murtagh, the comptroller of currency. After they settle upon the amount of the appropriation, it goes to the legislature. The legislature can vote only on what sums have been set.

I wish you would do me a favor. It is this: Write to Mr. Johnson Brigham and Mr. C. B. Murtagh at the State House. Simply say that considering the wide circulation of the medical library, you would be pleased if they could see their way clear to appropriate a little larger sum for the medical library which would include a fund for binding. I haven't had a penny for binding in two years. The JOURNALS will not stand up on the shelves. They should be bound in order to preserve them. I will be very grateful if you will do that.

President Burcham: Will somebody move the acceptance of the Doctor's report?

Dr. Baker: I move that it be accepted.

*The motion was put to a vote and carried.*

President Burcham: Committee on Military Affairs.

## REPORT OF COMMITTEE ON MILITARY AFFAIRS

To the Officers of the Iowa State Medical Society and Members of the House of Delegates:

Your Committee on Military Affairs wishes to submit the following report for the year 1935-36:

A recent communication from the office of the Surgeon of the Seventh Corps Area contains information of more than passing interest to those members of the Iowa State Medical Society who hold reserve commissions in the Medical Corps of the United States Army.

There are 649 Medical Department Reserve Officers in Iowa, of whom 119 are at present ineligible for assignment, promotion, or active duty. Losses through inactivity have been practically negligible for Iowa. During the past year, probably not more than 10 or 15 have been lost on that account, and about the same number was lost due to failure to submit reports of physical examination for reappointment. About 60 Medical Department Reserve Officers from Iowa applied for two weeks' active duty training during 1935, 38 of whom received training. In addition to this, many officers were selected for a six months' tour of duty with the Civilian Conservation Corps. Those selected for duty with the C. C. C. were for the most part Medical Corps Reserve Officers. Eighteen Medical Department Reserve Officers from the state of Iowa received promotions in 1935. This does not include Second Lieutenants, Veterinary Corps, who may be promoted to First Lieutenants by submitting a satisfactory report of physical examination, if they are serving in an eligible appointment period.

There are approximately 225 Medical Department Reserve Officers in Iowa enrolled in Extension Courses of the Medical Field Service School. Seventy-five of these are new enrollments, that is, enrollments since the beginning of the school year, September 1, 1935. There have been no enrollments canceled so far this year, but about 50 students are delinquent and will probably have to be dropped at the end of the school year, unless the required subcourses and lessons are completed before June 1, 1936. During the past year or two, there has been a noticeable increase in the number of Reserve Officers enrolled in the Army Extension School, probably due to the fact that this is about the only way a Reserve Officer can properly qualify himself for promotion. At the present time, this Corps Area is considerably below the procurement requirements of Medical Corps Reserve Officers in the grades of Major and Captain, and every effort is being made to have our junior officers enroll in the extension school with a view to preparing for promotion.

On January 1, 1935, there were 11 Medical Reserve Officers from Iowa enrolled in the Extension School

of Aviation Medicine, two of whom finished the course during the year. There were three new enrollments from Iowa in this field during the year.

This report from the Surgeon is very gratifying and shows that an increased interest is being manifested in the problem of national defense.

At the Davenport Session of the Iowa State Medical Society, the Military Surgeons Club held its annual meeting. A very interesting paper was given by an officer from the United States Arsenal at Rock Island on the new developments in ordnance. That meeting being the annual session, election of officers for the year 1935-36 was declared an order of business. The following officers were elected: President, Thos. F. Suchomel, Maj. Med. Res.; vice president, Harold A. Spilman, Lieut. Col., Med. Res.; secretary, Arnold Jensen, Maj. Med. Res.

The meeting was then adjourned to meet in Des Moines in 1936, in conjunction with the annual meeting of the Iowa State Medical Society.

Thos. F. Suchomel, Chairman  
H. A. Spilman  
Arnold Jensen

Dr. Suchomel: I *move* that the report of the Committee on Military Affairs as published in the Handbook be accepted.

*The motion was put to a vote and carried.*

President Burcham: Committee on Scientific Exhibits, Dr. McNamara, Dubuque, Chairman.

#### REPORT OF THE COMMITTEE ON SCIENTIFIC EXHIBITS

One of the most valuable and comprehensive scientific exhibits ever held in Iowa was arranged for the 1935 annual session at Davenport. The local committee had aided greatly in making this possible. The Scientific Exhibits Committee has also arranged excellent exhibits for the 1936 session to be held in Des Moines, April 29 to May 1.

As a matter of constructive criticism, the Committee believes that the members of the State Society as a whole have shown relatively little interest in the scientific exhibits. Consequently, the enthusiasm of some men in the state has been dulled, resulting in keeping them from developing valuable exhibits. As a possible remedy for this situation, it might be desirable for the State Society to offer some form of reward for the efforts of the men who arrange outstanding exhibits.

A second criticism is in regard to the quarters usually set aside for the exhibits. The great need of the Society is a more suitable hall for this purpose. Better quarters should be arranged as soon as possible, at least in Des Moines, where the meetings are most frequently held.

The Committee has also considered the development of a Hobby Show for the annual session. These have proved very successful in other states and undoubtedly would be of great interest in Iowa. Their development depends upon an adequate and suitable hall as well as upon the interest of the members of the Society.

F. P. McNamara, Chairman

Dr. McNamara: I *move* that the report as printed in the Handbook be accepted.

*The motion was put to a vote and carried.*

President Burcham: Woman's Auxiliary Advisory Committee, Dr. Johnson of Council Bluffs, Chairman. (Absent). Is any other member of the Committee present? Will someone move the acceptance of the report?

#### REPORT OF THE ADVISORY COMMITTEE OF THE WOMAN'S AUXILIARY

Immediately upon the appointment of the Advisory Committee of the Woman's Auxiliary, the chairman contacted all members of the Committee and requested suggestions as to the program to be carried on by the Auxiliary. Much help was given by the members. The chairman also met with the President of the State Auxiliary and a program was outlined which was agreeable to the members of the Advisory Committee.

A great deal has been accomplished this year by the Auxiliary in promoting health education in the schools, both along the lines of preventive medicine and also the medical profession's viewpoint regarding socialized medicine.

The following report received from the President of the Woman's Auxiliary outlines the activities of that organization.

"A state program for Auxiliary activities was planned with the cooperation of the Advisory Committee. This program was approved, adopted and presented to the county units. It was submitted to them to assist the county auxiliaries in preparing constructive programs in accordance with the plan of the National Auxiliary and to keep them informed of the needs within our own state and the plan of the State Department of Health. This was the first attempt to develop such a state program and it was used, in part if not in its entirety, throughout the state.

"For the third consecutive year, the Auxiliary sponsored a health essay contest in the high schools and junior high schools throughout the state. The subject of immunization was chosen because of the emphasis which is being placed on preventive medicine and in cooperation with the campaign which the State Department of Health is waging against smallpox. This contest does not close until March 16; thus no estimate can now be given as to the number of participants. Judging from the inquiries, however, the response will be most gratifying. All county auxiliaries were furnished with a paper on 'Plans for Immunizing Campaigns,' prepared by Dr. J. H. Kinnaman of the State Department of Health.

"Information concerning the services of the Speakers Bureau was freely given; the number of speakers placed is not available. In addition to presenting Iowa physicians as speakers, the Wapello and Pottawattamie county auxiliaries presented Dr. W. W. Bauer of the American Medical Association.



"The publication of the American Medical Association, *Hygeia*, has been placed in many schools and libraries over the state by county auxiliaries. Some of our organizations have given books on health subjects to their local libraries for circulation among the laity. These books are selected from the list recommended by the American Medical Association.

"The outstanding work of the Auxiliary for the year was the distribution of authentic material for the use of the schools and students debating the question of Socialized Medicine. Two hundred fifty Iowa schools were registered for this debate question. They, as well as libraries, were furnished from one to three packets of material, each containing 17 pamphlets and books which had been assembled and distributed by the American Medical Association. In addition to this, the Speakers Bureau of the State Medical Society made available a booklet prepared by the Minnesota State Medical Society. Besides those schools registered as debating this question, many small schools as well as individuals were likewise supplied with material.

"The Iowa Auxiliary was hostess to the President of the National Auxiliary.

"At the invitation of the Executive Committee of the Cancer Committee of the Iowa State Medical Society, the President of the State Auxiliary attended a meeting in Des Moines on February 11, at which time preliminary plans were made to carry out educational work on the subject of cancer.

"Auxiliary members are serving in increasing numbers on the health committees of various organizations over the state. One Auxiliary member is State Chairman of the Health Committee of the Federated Women's Clubs of Iowa, and many others serve as district or health chairman of the Federated Women's Clubs, the Parent-Teacher Associations and other groups. Auxiliary officers in the counties are better informed than ever and are working in a cooperative spirit with the medical societies, making annual reports, suggesting activities and asking for suggestions in order that they may best support and cooperate in the activities of the medical profession.

"Iowa has twenty organized auxiliaries, representing twenty-four counties. Two counties are inactive; one disbanded two years ago because of small membership. One auxiliary reorganized during the past year. One new unit was organized, the Northwest Medical Society, comprising four counties—Osceola, Lyon, Sioux and O'Brien. The organization work of the Auxiliary is handicapped because of lack of funds. Our income is based on dues of twenty-five cents per member. With three hundred members, the funds scarcely cover supplies, postage and convention expenses. The President carries a great share of the burden of organizing expenses. It is readily obvious that the activities of the Auxiliary are curtailed by this lack of funds for organizing purposes. In a number of states where this situation has come up, the medical societies have made a fund available. We should like to suggest that the

advisability of such a program come before your Committee for consideration.

"The Woman's Auxiliary would like to express its appreciation to the Advisory Committee for its generous and conscientious cooperation in Auxiliary matters. The benefits and achievements cannot all be 'pigeonholed.' Our local group has an enviable record for achievement in so short a time and every member attending regularly places an inestimable value on the friendship and understandings it has brought about."

Mrs. M. C. Hennessy, President  
Woman's Auxiliary, Iowa State Medical Society  
Aldis A. Johnson, Chairman

*Upon motion regularly made and carried, the report of the Woman's Auxiliary Advisory Committee as published in the Handbook was accepted.*

President Burcham: Is the Chairman of the Council here? We passed the report of the Council, and I will ask for it at this time. The report has not been accepted. If you have any additional report to make after the acceptance of the report in the Handbook, we will be glad to hear it.

## REPORT OF THE CHAIRMAN OF THE COUNCIL

To the House of Delegates:

The usual problems have presented themselves throughout the state, as an aftermath of the unusual economic and social conditions which have been with us for a few years and that still remain only partly solved. It should be apparent to all physicians that in more complete membership in our professional organization lies our greatest hope. With a greater tendency toward increasing bureaucracy riding in the saddle, we are likely to find that consistency and steadfastness are two vital virtues that we should cultivate.

Two meetings of the Council were held since the last annual meeting of the House of Delegates. The chairmen and other members of the Council committees were invited to our first meeting in order that we might aid them somewhat in defining their duties and limitations, with the thought that duplication and overlapping of committee activities might be avoided. If we are within our rights, the Council would like to suggest to the House of Delegates that more thought and consideration be given to the creation of committees, particularly where there is an overlapping of activities which might hinder the results that we anticipate at the time the committee is created. We feel that such careful consideration will add to the efficiency and harmony both within and between the various committees.

Our second meeting was with the Commissioner of Health and his staff, the officers of the Society and such committees as would be affected by the operation of the activities of the Social Security Act. The main object of the conference was to allow the medical profession of Iowa to have a voice in the operation of the different phases of this Act before the funds were appropriated and the work begun. At the pres-

ent time I am not informed whether such funds have been appropriated.

Judging from the various councilor district reports, we may say that the scientific activities of the State Society throughout the state have been such as to keep the medical profession in Iowa apace with the general advancement in scientific medicine.

Felix A. Hennessy, Chairman

## REPORTS FROM COUNCILOR DISTRICTS

### First Councilor District

As Councilor of the first district, I should like to express my appreciation to the deputy councilors and officers of the county societies in this district for their cooperation. In particular I should like to commend the members of the Floyd County Medical Society for their activities in sponsoring the recent postgraduate course at Charles City, in conjunction with the Speakers Bureau. Through the efforts of these men and the cooperation of the physicians in the adjoining counties, one hundred twenty-five doctors enrolled for the course—a record which has never been exceeded in any other center in Iowa where postgraduate work has been offered. To Dr. C. W. Ellyson, councilor of the sixth district, and the doctors of his district who attended the course, we extend our sincere thanks for their cooperation in establishing such a record and in making the project a success.

I am submitting herewith the reports of the deputy councilors in each county in the first district.

Felix A. Hennessy, Chairman

Allamakee County. Three new physicians located in Allamakee County in 1935, one of whom became a member. No members moved away nor were there any deaths among the physicians in this county.

One county society meeting was held; a joint business and social meeting attended by about fifty per cent of the membership. Five members attended postgraduate courses.

Allamakee County is under the Iowa Emergency Relief Administration set up for the medical care of the poor.

A few public health talks were given by members of the county society and the society actively supported the Legislative Committee of the State Society.

John W. Thornton, Deputy Councilor

Bremer County. Two new physicians located in Bremer County in 1935. There were fifteen paid up members of the Bremer County Medical Society for 1935. We had no deaths among the physicians and but one member moved away. However, he returned and is now a member in good standing. We have two or three of our county society members who are eligible for life membership but so far none have made application.

We had five meetings in 1935, all of which were scientific and in two instances business was transacted. Ninety-five per cent of the members attended

the county meetings. Fourteen members attended the postgraduate courses held in Independence, New Hampton and Charles City.

A committee was appointed to cooperate with county supervisors regarding the relief program. The present set up is that the members of the society accept a twenty-five per cent reduction of the regular fee bill for medical services and a fifty per cent reduction for surgical. We do not have a written contract—only a gentlemen's agreement—and we aim to follow the fee bill recommended by the State Society.

We had two meetings called principally to discuss the Social Security Act and socialized medicine. At one of these meetings we had talks presented by Dr. L. C. Kern of Waverly, Dr. T. F. Thornton of Waterloo and Dr. C. C. Smith of Clarksville.

We do not have a Woman's Auxiliary in Bremer County. Several health talks were given during 1935 by members of our society. For 1936 the physicians of Waverly have removed their professional cards from all three newspapers and we have a weekly health talk published and paid for by the staff of St. Joseph Mercy Hospital.

F. R. Sparks, Deputy Councilor

Chickasaw County. Four new physicians located in Chickasaw County in 1935. One new member was taken into the county medical society; three members died.

One combined social and business meeting was held, with an attendance of about sixty per cent of the membership. Seven members took advantage of postgraduate courses offered in this locality.

Members of the society were active in supporting the Legislative Committee and in giving public health talks.

The Chickasaw County Medical Society is still operating under the emergency medical relief plan of the Iowa Emergency Relief Administration.

Paul E. Gardner, Deputy Councilor

Clayton County. Membership report: two new physicians; one new member; three life members. Meetings: two—one scientific and one business—attended by ninety per cent of members. Plan for medical care of indigent: Iowa Emergency Relief Plan. Other activities: Support of Legislative Committee; eight members participated in postgraduate work; about ninety per cent of school and pre-school children immunized against diphtheria.

J. W. Hudek, Deputy Councilor

Fayette County. No new physicians located in Fayette County. No new members; no loss of members through death or removal; one life member. Five meetings of the Fayette County Medical Society were held. Three of these meetings were business and the others for scientific programs. We have an average attendance of about sixty per cent of our members. We had no special meetings for a discussion of the subjects of socialized medicine or the Social Security Act but they were discussed at our regular meetings.

The members of the society have been rather ac-



tive. We actively supported the Legislative Committee. We have a county contract with the Board of Supervisors for the care of the indigent. About five physicians took postgraduate courses; about the same number gave talks on public health subjects. Diphtheria immunization was carried out in Oelwein and West Union. We do not have a Woman's Auxiliary but the women hold meetings in connection with the meetings of the county medical society.

C. C. Hall, Deputy Councilor

Floyd County. No new physicians nor members in Floyd County during 1935. We lost one member through death. Monthly meetings of the county medical society were held throughout the year, combining scientific, social and business sessions. One of the subjects discussed was that of socialized medicine. Not only do we have one hundred per cent attendance at our county society meetings, but Floyd County Medical Society enrolled one hundred per cent for the postgraduate course given at Charles City and sponsored by the society in conjunction with the Speakers Bureau.

We have a satisfactory agreement with the county for the medical care of the indigent, based upon one-third of the regular fee schedule. Our county society was active in the support of the Legislative Committee, in the election campaign for a new hospital and in public health work. A couple of public health talks were given by members and the county sponsored a community talk at Charles City by Dr. Morris Fishbein of the American Medical Association.

R. A. Fox, Deputy Councilor

Howard County. No new physicians located in the county; one new member taken into the county medical society; no members lost through death or removal; one life member. One meeting of the county medical society was held for business purposes, with an attendance of eighty-seven per cent of the members. County society activities include: support of Legislative Committee; cooperation in the medical relief plan of the Iowa Emergency Relief Administration; immunization work among all school and pre-school children who desire it. Four members of the society took postgraduate work; about three public health talks were given by members. We have had a Woman's Auxiliary but it is now inactive.

Wm. A. Bockoven, Deputy Councilor

Mitchell County. One new physician located in Mitchell County in 1935. Two new members were admitted to the county medical society. One member died.

We have had eight meetings during the year, seven of which were business, the other social; attendance about seventy-five per cent of membership. Six members of the society attended the postgraduate course held in Charles City; one member attended a postgraduate course in Cook County, Chicago. Our county society has actively supported the activities of the Legislative Committee and are campaigning actively against our present representative and senator, who opposed the recent Basic Science Bill.

We have retained the contract previously held with the Board of Supervisors, which gives us approximately fifty to sixty per cent of our regular charges for the care of the indigent.

The sentiment of the society is much against socialized medicine. We have neither a Woman's Auxiliary nor broadcasting station in the county. An antidiphtheritic campaign was conducted in Osage by the physicians and the American Legion.

T. S. Walker, Deputy Councilor

Winneshiek County. One new physician located in Winneshiek County; one new member taken into the society; one member moved away; one life member.

Four county society meetings were held which were combined scientific, social and business sessions attended by about ninety per cent of the members. The subject of socialized medicine and the Social Security Act were among those discussed.

For the medical care of the indigent we are still continuing under the set up of the Iowa Emergency Relief plan, with the exception that the county is now paying the bills.

Six members attended the last postgraduate course given at Charles City. About thirty public health talks were given by our members; we cooperate with the local interprofessional society in giving radio talks on health matters once a week over the local broadcasting station.

A. F. Fritchen, Deputy Councilor

## Second Councilor District

Membership has been maintained in that there were no delinquent members in the second district in 1935. There are still twenty-two eligible non-members in the district—four in Butler, one in Cerro Gordo, three in Franklin, four in Hancock-Winnebago, four in Humboldt, five in Kossuth and one in Worth. The eligible non-members of the Hancock-Winnebago Medical Society are all in Winnebago County. Hancock County has one hundred per cent membership, as has Wright County.

The following physicians have been voted life membership by their county societies and are recommended to the House of Delegates for such honor:

Dr. G. M. Lee, of Thompson, Winnebago County.

Dr. F. A. Stevens, of Belmond, Wright County.

Dr. J. H. Sams, of Clarion, Wright County.

Dr. C. H. Morse, of Eagle Grove, Wright County.

The inclement weather of the past winter prevented much of the usual activity of the district, but the county societies have maintained their usual activities.

The following reports are the reports of the individual deputy councilors.

L. R. Woodward, Councilor

Cerro Gordo County. One new physician located in the county; one new member taken into the county medical society; no members were lost through removal or death; one life member.

Nine meetings of the county medical society were held, all of which were combined scientific, social and

business sessions, attended by ninety per cent of the membership. One of the subjects discussed was the Social Security Act.

Twelve members of the society attended postgraduate courses during the year; about ten health talks were given by members. Other activities of the county society include: support of the Legislative Committee; patient listing committee; hospitalization committee. We have a contract with the Board of Supervisors for care of the indigent sick based upon a fee schedule of fifty per cent of the minimum fee schedule recommended by the State Society.

There is an active Woman's Auxiliary in Cerro Gordo County, to which about sixty per cent of the eligible members belong. In 1935 they raised money to contribute to the funds to sponsor the Health Essay Contest of the state Woman's Auxiliary.

W. E. Long, Deputy Councilor

Franklin County. No new physicians located in the county; two new members were taken into the county medical society; no loss of members; no life members.

Eight meetings of the county medical society were held, combining business and scientific sessions. About ninety per cent of the members attend regularly. The subject of socialized medicine was discussed at our meetings.

Five members attended postgraduate courses; eight public health talks were given by members of the society. Other activities along public health lines consisted of immunizing the school children throughout the county against diphtheria.

Franklin County Medical Society actively supported the Legislative Committee.

We have no contract for the care of the indigent sick nor do we have a Woman's Auxiliary.

Walter K. Long, Deputy Councilor

Humboldt County. No new physicians have located in the county during 1935; no new members admitted to the society; one member moved away; we have no life members of the State Society.

Four business meetings of the Humboldt County Medical Society were held during the year. About seventy-five per cent of our members attend our meetings. Informal discussions of the subjects of socialized medicine and the Social Security Act were held.

Five members of the society took postgraduate work. The county society carried on diphtheria immunization work in the schools.

The society was active in its support of the Legislative Committee.

J. K. Coddington, Deputy Councilor

Kossuth County. No new physicians located in the county; one new member was taken into the county medical society; two members were lost by death; we have no life members.

Six meetings of the county medical society were held in 1935, combining scientific, social and business sessions. The subject of socialized medicine was one of those discussed. All of the members attend the

meetings, and all members attended postgraduate courses during the year.

A few public health talks were given by members of the society. Immunization work against diphtheria and scarlet fever was carried on in the county.

The Kossuth County Medical Society was active in its support of the Legislative Committee.

Our arrangements for the care of the indigent sick include a fee bill applicable to such cases.

W. T. Peters, Deputy Councilor

Wright County. One new physician located in the county; one new member admitted to the county medical society; no loss of members; applications for three life members to come before the House of Delegates.

Eight meetings of the county medical society were held during the year, combining scientific and business sessions. The subject of socialized medicine was among those discussed. Approximately eighty per cent of the membership attend the meetings.

Twenty of our doctors have taken postgraduate work in the past two years. About thirteen public health talks have been given by members of the society during the year. The county society has carried on immunization against diphtheria in the public schools of Eagle Grove, Belmont, Goldfield, Rowan, Dows and Clarion in the past year. We actively supported the Legislative Committee.

The plan in force in Wright County for the care of the indigent sick is an agreement with the Board of Supervisors. The county society does the work for indigents at fees as set forth in the set up originally planned by the Iowa Emergency Relief Administration, with the understanding that these fees shall be paid in full by the county Board of Supervisors. The bills are sent to the social worker before the third of each month and a committee from the society, consisting of the deputy councilor, the president and secretary of the society, meets with said social worker for the purpose of auditing the books before presenting same to the Board.

J. H. Sams, Deputy Councilor  
John R. Christensen, Secretary

### Third Councilor District

The third councilor district has had another normal year. Normal in the sense that the various societies, county as well as district, have been functioning without much strain or controversy. Several of the county societies had a 100 per cent membership in 1935; likewise, several counties have had more regular meetings with good programs. Both the Northwest Iowa and the Upper Des Moines District societies have had splendid programs, good attendance and an increase in membership.

O'Brien and Osceola Counties combined in carrying out a tuberculosis testing program under the direction of the Iowa Tuberculosis Association. This campaign was highly successful and greatly appreciated both by the medical profession and the public.

The third and fourth councilor districts had a joint meeting at Sioux City in December for the



purpose of discussing the Social Security Act. The Hon. Guy Gillette of Cherokee, gave a splendid address on that part of the Act that pertains to the medical profession. His views were generously applauded by the two hundred doctors present. Dean E. M. MacEwen of Iowa City also gave his views on the subject, and his talk was followed by several impromptu addresses by other physicians.

Many of the counties have had diphtheria immunization campaigns with excellent results.

A more detailed report of the activities in each county is given by each deputy counselor.

Frank P. Winkler, Counselor

Clay County: One new physician located in the county in 1935; no new members in the county society; no loss of members; no life members.

Six meetings of the county medical society were held during the year. These meetings were business and social and were attended by about ninety per cent of our members. Next year we hope to have scientific programs for at least some of our meetings. At one of our meetings we had a discussion of the Social Security Act. The consensus of opinion was that since the Act has been passed and will soon be in effect, we as a society would cooperate in that part of the program that had to do with preventive medicine and promoting the health of the community. The society would resent any effort that tended to encourage state medicine or dictated in the practice of our profession.

Three of our members attended postgraduate courses during 1935. The entire society actively supported the Legislative Committee, and cooperated in the smallpox immunization work done in all schools in the county.

The members of the Clay County Medical Society have a contract for the care of the indigent sick for \$275.00 a month for furnishing all medical services, attendance and attention including necessary medicines, except serums, insulin and liver extract. This sum does not include fees for emergency surgical services. For such services one-third of the fee schedule recommended by the Medical Economics Committee of the State Medical Society is used as a basis of charges.

J. M. Sokol, Deputy Counselor

Dickinson County. Two new physicians located in the county; two new members were admitted to the county society; two members were lost by death and removal; no life members.

Twelve county society meetings were held. Many of these—the social and scientific meetings—were held in conjunction with the Emmet County Medical Society. Both the questions of socialized medicine and the Social Security Act were discussed. There was a fair attendance at all meetings.

Between three and five members attended postgraduate courses. Public health activities of the county society included some immunization work in several schools.

The only arrangement we have for the care of the

indigent is a county fee schedule. Each doctor submits his own accounts for the cases under his care.

There is a Woman's Auxiliary in Dickinson County.

D. G. Nicholson, Deputy Counselor

Emmet County. Membership status did not change during the year, nor did any new physicians locate in the county; no life members.

Nine meetings of the county society were held. The scientific meetings were held in conjunction with Dickinson County. Business meetings were held separately. Talent for our programs is drawn from within our own counties, from our state university College of Medicine, other counties, and from outside the state. Socialized medicine and the Social Security Act were among the various subjects discussed. About seventy-five per cent of the members attend the meetings.

Postgraduate courses were attended by eight members; public health talks given by ten. The society as a whole supported the Legislative Committee.

We have a Woman's Auxiliary to the Emmet County Medical Society.

In the early part of 1935 the Iowa Emergency Medical Relief Plan for the care of the indigent was accepted by vote of the members. After a twenty per cent cut of the fee schedule which had been agreed upon had been put in effect, we voted not to accept it. The local Board of Supervisors could do nothing as the county poor funds were exhausted. Several meetings of the county were held to solve this problem but no very satisfactory solution was reached. As a result the physicians in the county took care of the indigent without compensation. We now have a lump sum contract of \$8,200.00. This provides for all medical care, nursing and drug bills for all indigent people for the year. This amount is pro-rated.

M. T. Morton, Deputy Counselor

Lyon County. One new physician located in the county; no new members; no applications; no loss of members; no life members.

Ten county medical society meetings were held during the year. The meetings were a combination of business, social and scientific sessions, and were attended by about eight per cent of our membership. Both the subjects of socialized medicine and the Social Security Act were among those considered. Each member of the society entertains the society in turn at the meetings.

At least a couple of public health talks were given by members of the society. The society sponsored toxoid and Schick testing clinics and smallpox vaccination clinics. The society also supported the Legislative Committee.

In taking care of the indigent sick in the county, each member submits his bill in accordance with an adopted fee schedule. The patient has his choice of physician.

There is a Woman's Auxiliary to the medical society in the process of formation.

L. L. Corcoran, Deputy Counselor

O'Brien County. No change in membership status during the year; no life members; one new physician located in the county.

Four county society meetings were held, combining scientific, social and business sessions. Approximately eighty per cent of our membership attends the meetings. One of the subjects discussed was that of socialized medicine.

Eighty per cent of our membership attended postgraduate courses. Public health talks were given by about six members. The society as a whole cooperated in immunization work throughout the county and in tuberculosis testing work. O'Brien County actively supported the Legislative Committee.

Our local Board of Supervisors allows two-thirds of the regular fee schedule for medical care of indigent cases.

A Woman's Auxiliary has just been organized in the county with about eighty per cent of all the eligible women belonging.

W. R. Brock, Deputy Councilor

Osceola County. No new physicians located in the county during the year; no new members admitted to the society; no members lost; one life member.

Four county medical society meetings were held. The meetings combined scientific, social and business sessions and were attended by about ninety per cent of the membership. Socialized medicine and the Social Security Act were among the subjects discussed.

One member took postgraduate work. Entire county supported the Legislative Committee. Both diphtheria immunization and tuberculosis testing programs were carried out throughout the county.

We have an agreement with the County Board of Supervisors for the care of the indigent. They allow two-thirds of the regular fee schedule for such patients.

A Woman's Auxiliary has just been organized in the county. Approximately eighty per cent of the eligible members belong.

Frank Reinsch, Deputy Councilor

Palo Alto County. No change in membership status; no new physicians located in the county; no life members.

Four county medical society meetings, combined business and scientific, were held in 1935, attended by about sixty-six per cent of our members. Both socialized medicine and the Social Security Act were among the subjects discussed.

The county society supported the Legislative Committee. About nine members attended postgraduate courses. We conducted at Emmetsburg last spring a laboratory course put on by the Speakers Bureau of the State Society. There were approximately 35 doctors from central northwest Iowa in attendance at the meetings. Approximately eight public health talks were given by members of the Palo Alto County Medical Society.

In our county, the individual physician receives authority from the county Board of Supervisors for the care of the indigent.

The Palo Alto County Medical Society has cooperated with the Board of Directors of the Palo Alto Hospital in the activities of the hospital, the members of the society acting as staff of the institution. The County Society has gone on record in 1935 as pledging its support to the Board of the Palo Alto Hospital and requesting that a new hospital be built in and for Palo Alto County.

H. L. Brereton, Deputy Councilor

#### Fourth Councilor District

As Councilor of the Fourth District, I wish to submit the following reports:

Buena Vista County. No change in membership status; no new physicians located in county; one life member at present, three more eligible.

One meeting of the county society was held during the year. It was a combined social and business meeting and was attended by about sixty per cent of the membership. The subjects of socialized medicine and the Social Security Act were discussed at this meeting as well as at other meetings attended by the members.

The society supported the Legislative Committee. Nine members attended the postgraduate course given last fall. About three or four public health talks were given by our members. Three or four immunization projects were carried out in the county.

The Buena Vista Medical Society has drawn up a fee schedule which the Board of Supervisors has accepted for medical services to indigent patients.

H. E. Farnsworth, Deputy Councilor

Cherokee County. No new physicians located in the county during the year; one new member admitted to the county medical society; two members were lost through removal; one life member.

Nine meetings of the county medical society were held. The meetings combined social, scientific and business sessions, attended by about ninety per cent of our membership. The subject of socialized medicine was among those discussed.

Activities of the members: eleven attended the postgraduate course given last fall at Ida Grove.

County society activities: Four-H Club examinations; diphtheria and smallpox immunization work among small children; support of Legislative Committee.

The medical care of the indigent is taken care of in Cherokee County under the plan of the Iowa Emergency Relief Administration—bills submitted by individual physicians and fees paid directly to the doctor.

C. H. Hall, Deputy Councilor

Crawford County. One new physician located in the county in 1935; no new members admitted to the society; no members lost; no life members.

Two combined social, business and scientific county society meetings were held with an attendance of about fifty per cent of the members.

Activities of members; three or four attended postgraduate courses; one gave public health talk.

Activities of county society; supported the Legis-



lative Committee; carried on diphtheria immunization work.

The medical care of the indigent is provided under the plan of the Iowa Emergency Relief Administration, which is open to all licensed physicians and osteopaths of the county.

C. L. Sievers, Deputy Councilor

Ida County. The membership status remained unchanged during the year; no new physicians located in the county; three life members.

Three business meetings of the county society were held in 1935, with an attendance of about ninety per cent of the membership. The subjects of socialized medicine and the Social Security Act were discussed. Scientific sessions are held in conjunction with Plymouth, Cherokee and Buena Vista Counties.

Ten members attended the postgraduate course held at Ida Grove and sponsored by the Four County Medical Society.

The county society actively supported the Legislative Committee and carried on a complete diphtheria immunization program throughout the schools of the county.

We do not have a contract in our county for the care of the indigent but there is an agreement between the county society and the Board of Supervisors which is satisfactory.

E. S. Parker, Deputy Councilor

Sac County. Two or three new physicians located in the county during 1935; two new members were admitted to the county society; we lost two physicians by death; we have one life member.

We held seven meetings of the county society in this county last year and the attendance was good—about seventy-five per cent of the membership. Our society discussed both socialized medicine and the Social Security Act but never came to any definite conclusions as to just what should be done about either.

As far as I am aware there were no public health talks given by any of our members in 1935. We were active in public welfare work and in preventive medicine, carrying out diphtheria and scarlet fever immunization campaigns. We supported the Legislative Committee one hundred per cent.

At present we have no contract for attending the poor but are working on an old contract. The supervisors allow us fifty per cent of our regular fees but we have to have authority from the trustees to attend these cases or we receive no pay for our services in connection with them.

L. H. Jones, Deputy Councilor

Woodbury County. Five new physicians located in the county during the year; two new members were admitted to the county society; one member lost through death; we have five life members.

Nine meetings of the county medical society were held. One meeting was social, the others were scientific. Our meetings are attended by about seventy-five per cent of our membership. A joint meeting of the third and fourth councilor districts was held in Sioux City. Our members were thus privileged to join in a discussion of the questions of socialized medicine and the Social Security Act.

The society was active in its support of the Legislative Committee. It was also active in immunization work, immunizing 1,860 against diphtheria and vaccinating 1,102 against smallpox. Other county society activities include our welfare clinic, tuberculosis programs, etc. About sixty public health talks were given by members of our society. We have a county contract for the care of the indigent in the county.

There is a Woman's Auxiliary to the Woodbury County Medical Society, to which approximately fifty per cent of the eligible members belong. It is a purely social organization.

There is a radio station in Woodbury County over which at various times individual members give radio talks. However this is not conducted as a program of the society.

Peirce D. Knott, Deputy Councilor  
James E. Reeder, Councilor

#### Fifth Councilor District

I am submitting herewith reports received from the deputy councilors in the following counties:

Boone County. One new physician located in Boone County in 1935; three new members were admitted to the county society; two members were lost through death and removal; we have no life members.

We had ten or twelve meetings of the county medical society during the year. They were combined scientific, social and business sessions and were attended by about ninety to one hundred per cent of our membership. The subject of socialized medicine was one of those considered. The Social Security Act was discussed in a general, informal way. The Boone and Story County Medical Societies meet together about six or eight times a year.

All members except one took postgraduate work. The society as a whole was active in its support of the Legislative Committee. Smallpox and diphtheria immunization work was carried out in the county.

We have a county contract for the care of the indigent.

There is a radio station in Boone County but the society does not broadcast public health talks over it.

James O. Ganoe, Deputy Councilor

Calhoun County. Two new physicians located in the county in 1935; both new men were taken into the county medical society; we have one life member in active practice, one retired and one no longer a resident in the state.

Seven meetings of the county medical society were held during the year, combining scientific and business sessions and attended by about twenty-five per cent of the membership. The Social Security Act was one of the subjects discussed. There was one meeting of the Twin Lakes District Society, at which time Dr. Morris Fishbein spoke on the subject of socialized medicine.

Two members reported having taken postgraduate courses. About eleven public health talks were given by members of the Calhoun County Medical Society. Diphtheria immunization work was carried out in

the schools at Lake City, Pomeroy and Jolley. The society was active in its support of the Legislative Committee.

Other county society activities include cooperation in the interprofessional organization, a committee on old age pensions for physicians, and a county society contract for the care of the indigent. This contract is based on fifty per cent of the fee schedule recommended by the Medical Economics Committee of the Iowa State Medical Society.

P. W. Van Metre, Deputy Councilor

Dallas County. The membership status in the county has not changed during the year; no new physicians have located in the county; we have four life members.

There have been four meetings of the Dallas-Guthrie Medical Society in 1935. The meetings are combined scientific and business sessions, attended by about eighty per cent of the members. The questions of socialized medicine and the Social Security Act were among those discussed.

Postgraduate work was taken by six members; public health talks were given by four members. Diphtheria immunization work carried out in Dexter and Wauke. The society was active in its support of the Legislative Committee and the Basic Science Law.

We are working under the plan of the Iowa Emergency Relief Administration for the care of the indigent sick.

There is a Woman's Auxiliary to our medical society. About seventy-five per cent of the eligible members belong. During 1935 they cooperated in the health essay contest sponsored by the Woman's Auxiliary to the State Society.

E. J. Butterfield, Deputy Councilor

Greene County. Two new men located in Greene County late in 1935; both of their applications are now on file; no members were lost during the year; we have three life members.

Four county society meetings were held, combining scientific, social and business sessions. About eighty per cent of our membership attends the meetings. Socialized medicine and the Social Security Act were among the subjects discussed.

The society was active in its support of the Legislative Committee. There were no postgraduate courses held in our locality during the year so that members could attend. About five public health talks were given by our members. Diphtheria inoculation and smallpox vaccinations were carried out in two towns. The physicians helped in the summer round-up program, which includes immunization. They also cooperated in the 4-H Club examinations.

We have an arrangement for the care of the indigent sick which has been in operation for several years and has in general been satisfactory. The patient must first get an order from the office of the county welfare worker; he then has his choice of physician. The county medical society has an agreement with the Board of Supervisors as to the fees charged.

There is no Auxiliary in the county but several of the doctors' wives belong to the Auxiliary of the Twin Lakes District Society, probably about six per cent of the eligible members. They worked in Parent-Teachers Associations and supported health programs.

Ben C. Hamilton, Jr., Deputy Councilor

Guthrie County. No new physicians have located in the county during 1935; one new member admitted to the society; one member lost through death; one member retired; we have ten life members in the Dallas-Guthrie Medical Society, six in Guthrie and four in Dallas.

Four meetings of our combined society were held, combining business and scientific sessions. About eighty per cent of the membership attends these meetings. The subjects of socialized medicine and the Social Security Act were among those considered.

Two members report taking postgraduate work. The entire society was active in supporting the Legislative Committee. A great deal of immunization work, particularly against diphtheria, has been carried out in the various towns in the county.

We are under the Iowa Emergency Relief set up for the medical care of the indigent.

There is a Woman's Auxiliary to the Dallas-Guthrie Medical Society to which about seventy-five per cent of the eligible members belong. They cooperated in sponsoring the health essay contest.

S. J. Brown, Deputy Councilor

Polk County. Eleven new physicians located in the county during the year; nineteen new members were admitted to the society; eleven members were lost through death or removal; we have fourteen life members.

Sixteen meetings of the county medical society were held in 1935—fourteen were scientific, part of one social, and one and part of another business. Our average attendance is about thirty per cent of the membership. The subjects of socialized medicine and the Social Security Act were among those discussed.

Most of the committees of the society handle routine business. Activities of especial interest are listed:

1. Program.
2. Public Health and Legislation. Interprofessional organization.
3. Professional Relations.
4. Public Relations.
5. Educational. Drama of Health radio series broadcast over KSO.
6. Auditing.
7. Bulletin Advisory. The advertising in the county society Bulletin which is issued once a month.
8. Physicians Service Bureau. Telephone exchange.
9. Credit Reference Bureau. Delinquent list; Credit letters; Stuffers for use of physicians.
10. Military Affairs.
11. Commitment Committee. Examination of patients seeking admittance to University Hospital.
12. Economics. County medical contract; none now in effect.



13. Medicodental Bureau. For patients of low income.
14. Medical Emergency Relief. Set up for Iowa Emergency Relief Administration. Not effective in Polk County.
15. Golf.
16. Immunization and Child Health. Diphtheria immunization campaign.
17. Advisory to Broadlawns. Board of Hospital Trustees.

Provisions for medical care of the indigent in Polk County include: Broadlawns Hospital; a county physician by contract; township physicians on fee basis; health center clinics; Iowa Maternal Health League; well baby clinics; city health department (immunization only); Still College clinic.

The county society has engaged in an extensive program of immunization work. Outside of Des Moines 299 Schick tests were given, 598 immunized against diphtheria and 477 vaccinated against smallpox.

The county society was active in its support of the Legislative Committee of the State Society.

Records show that 34 talks to lay groups were given by members of our county society, as well as 13 radio talks on the State Society broadcasting periods and 7 Drama of Health broadcasts conducted by our own society.

We have a Woman's Auxiliary to which approximately seventy-five per cent of the eligible members belong. Committees were appointed late in 1935 to carry out projects recommended by the national auxiliary.

The statistics for this report were furnished by the Executive Office of the Des Moines Academy of Medicine and the Polk County Medical Society.

Joseph B. Priestley, Deputy Councilor

Story County. Two new physicians located in the county in 1935; two new members were admitted to the society; three members were lost through removal and death; we have one life member.

We had ten county medical society meetings—combined business and scientific sessions. About ninety per cent of our membership attends the meetings. The subjects of socialized medicine and the Social Security Act were discussed.

Our county was active in its support of the Legislative Committee. It also carried on a complete diphtheria and smallpox immunization program in the Ames city schools as well as a tuberculosis testing program.

There is a radio station located in our county but since the Speakers Bureau of the State Society broadcasts over it weekly, our county society has never attempted to develop any radio program.

The Story County Medical Society has a contract with our Board of Supervisors for the medical care of the indigent in the county. For 1936 this amounts to \$4,200.00.

Earl B. Bush, Deputy Councilor

Webster County. There were four new physicians located in the county in 1935; all four became members of the county society; one member was lost by death, Dr. A. A. Arent of Callender; we have no life members.

Webster County Medical Society held nine meetings during the year. The meetings were business and scientific with social functions following. Our attendance averaged close to sixty per cent of the membership.

Five members took advantage of postgraduate courses in various localities.

Committee activities were confined to: child health and protection; interprofessional relations; auditing committee functioning with local welfare society and county Board of Supervisors; consultation committee to pass on emergency welfare cases; grievance committee to safeguard interests of society contract with county and Welfare Society. Our interprofessional organization was very active in 1935. Our society actively supported the Legislative Committee both at home and with visits to the legislature while in session at Des Moines.

The Webster County plan for the care of the indigent is superior to any in the state. The close relationship between patient and physician is maintained and active cooperation is enjoyed with the local relief agencies and also the county Board of Supervisors. The plan is essentially one of a fee schedule. All indigents are treated according to schedule of fees and before treatment is instituted they submit an order from the relief agency for same. This applies in all cases except emergencies. An auditing committee checks all accounts each month with the relief agency and Board of Supervisors, thereby giving a triple check on all accounts. In cases of emergency surgery, the auditing committee must be consulted and examine case before surgery is instituted, thereby making the number of cases operated a minimum.

Socialized medicine is one of the most discussed topics in the society. The Social Security Act was discussed by Hon. Fred C. Gilchrist at a well attended meeting.

Our Woman's Auxiliary is well organized with about ninety per cent of the eligible membership. The Auxiliary carried on a campaign to place Hygeia in all schools and were successful.

Public Health Work: An estimate of the number of talks on public health given by members is from thirty to forty. Our county is well immunized against diphtheria and smallpox, due to the intensive work done by the school physician and school nurse in the city of Fort Dodge and the public school nurse in the county schools. No radio station operates in our county; therefore, as a society we do not broadcast health talks but some of our members broadcasted from stations in the state. Our society each year conducts a free health clinic, having as our primary purpose that of discovering early tuberculosis and heart disease.

L. L. Leighton, Deputy Councilor  
W. W. Pearson, Councilor

### Sixth Councilor District

Roughly we have adhered to the practice of quarterly district meetings scattered over the district, with such special meetings as were considered necessary.

In June we had our annual picnic and golf, or recreation meeting with golf and bridge in the afternoon and an interesting "travelogue" by Dr. E. E. Shaw of Indianola in the evening. This meeting was held at the Vinton Golf and Country Club.

In September Dr. T. C. Denny, medical director of the Iowa Emergency Relief Administration, explained the Iowa "set up" on medical relief before a sixth district meeting at the Hotel Tallcorn in Marshalltown.

In November Dr. W. W. Bauer, Director of the Bureau of Health and Public Instruction of the American Medical Association, gave an interesting talk before a group of the allied professions at Black's Tea Room in Waterloo.

In December a special meeting was arranged at the Hotel Tallcorn in Marshalltown for a discussion of the recently enacted Social Security Act. Hon. John W. Gwynne, of Waterloo, explained the medical provisions of the Act and definitely proved that he had made a deep study of and had a clear understanding of the Social Security Act. Because of bad roads and weather only about half of the large number of physicians who had made reservations were able to attend.

In January Dr. F. P. McNamara, of Dubuque, chairman of the Executive Cancer Committee of the State Society and Iowa chairman of the American Society for the Control of Cancer, had an open date for Dr. F. L. Rector, field agent for the American Society for the Control of Cancer. Dr. Rector explained the activities of his society before a Waterloo medical group and before a larger group of the Waterloo Woman's Club.

Generally there has been little change in the membership and activities in the counties of the sixth district. Jasper County sponsored a highly instructive postgraduate course on the subject of cancer at Newton and this and the other courses conducted by the Speakers Bureau in the surrounding territory were liberally attended by our physicians.

While as Councilor of this district I may be inclined to criticize many physicians as not being fully awake to the economic movements now affecting the medical profession, I also wish to commend the same stable characteristics that will not permit a medical group to be stampeded by C. W. A., N. R. A., Emergency Medical Relief set-up, Social Security Act, or any other movement that is a part of the present economic situation.

The deputy councilors in each county in my district, together with the county society officers, have handled their own local problems to the satisfaction of their own members. For this reason no attempt has been made to make periodic visits to counties except when requested. The combined county-district meetings have seemed to solve this requirement very nicely.

I wish to thank the following deputy councilors in the sixth district for their cheerful cooperation during the past year:

C. J. Snitkay, Belle Plaine, Benton County.  
A. J. Joynt, Waterloo, Black Hawk County.  
H. V. Kahler, Reinbeck, Grundy County.  
E. O. Koeneman, Eldora, Hardin County.  
I. J. Sinn, Williamsburg, Iowa County.  
H. P. Engle, Newton, Jasper County.  
A. D. Woods, State Center, Marshall County.  
A. A. Pace, Toledo, Tama County.

I should also like to express my appreciation to Dr. F. E. Simeral of Brooklyn who so kindly cooperated in carrying out the duties of deputy councilor as well as his own work as secretary, when Dr. C. V. Laugh-ton, formerly deputy councilor for Poweshiek County, left the state. Dr. E. B. Williams of Montezuma has now agreed to assume the responsibilities of deputy councilor in that county.

C. W. Ellyson, Councilor

### Seventh Councilor District

The following reports of the deputy councilors in the seventh district show that the condition of the medical profession in the component societies is good and that zeal is undiminished.

A number of new contracts have been made for the care of the indigent. It is very gratifying to note that, according to their terms, an increasing share of the responsibility for deciding purely medical problems is being placed upon the shoulders of the organized medical profession.

Arthur W. Erskine, Councilor

Buchanan County. The Buchanan County Medical Society has spent a very successful year. The doctors of the county are cooperative and the society is a harmonious organization. We have one life member; no new physicians located in the county during the year; one physician moved away.

At the first of the year we concluded the laboratory course of the Speakers Bureau, which was a worthwhile project and which was attended by all but three of the members of our county society.

Four county society meetings were held during the year, three of which were scientific. The summer meeting was scientific but was preceded by an afternoon of golf. At this meeting we had an attendance of 75 physicians; our usual attendance averages about ninety per cent of our membership. The programs for these meetings were as follows:

Spring meeting—Harold Entz, M.D., Waterloo.

Summer meeting—Hugh Cabot, M.D., Rochester.

Fall meeting—John H. Peck, M.D., Des Moines.

Winter meeting—State Department of Health, Des Moines.

At these meetings we had brief discussions of the subjects of socialized medicine and the Social Security Act.

The county society has been very active in other ways. We actively supported the Legislative Committee of the State Society. We carried on a county-



wide diphtheria immunization campaign and are about to start a tuberculin testing program in the Independence schools. We have a contract with the Board of Supervisors for the medical care of the indigent, in which is incorporated a definite fee schedule. Seven talks to the public on health subjects were given by members of our county society.

A great deal of the credit for our successful year should go to our very active county society secretary, Dr. Nelson L. Hersey.

C. W. Tidball, Deputy Councilor

**Cedar County.** One new physician located in Cedar county in 1935 and one removed from the county. Three scientific and business meetings were held which were attended by about seventy-five per cent of the membership. Two members attended post graduate courses. The society supported the Legislative Committee of the State Society.

No formal plan is in force in the county for the care of the indigent, care being still rendered on a reduced fee basis. There is an active Woman's Auxiliary which assisted in the immunization campaign against diphtheria and smallpox and also in the program of the state Cancer Committee.

E. J. Van Metre, Deputy Councilor

**Clinton County.** Two new physicians located in Clinton County during 1935; we have two new members; one member died and we have one life member.

The county society held fifteen meetings during the year, seven scientific, two social and six business meetings. Five of the business meetings were in regard to the care of the indigent. We have an average attendance of seventy at our meetings. Twelve or fifteen of our members took the postgraduate work given at Davenport.

We have a legislative committee which is quite active and always has been. We keep in close touch with the legislators in regard to medical legislation. A member of the society was out working during the last two days previous to the passing of the Basic Science Law.

We have a contract with our local Board of Supervisors which is approved by the Iowa Emergency Relief Administration and a working plan whereby the physicians take care of the patients in their own offices. Home calls and specialties are rotated alphabetically, the local relief committee turning over to the medical director a list of all the indigent and also making a report on border line cases. We pass on the patients sent to Iowa City and endeavor to keep within our quota. We care for as many patients locally as possible instead of sending them to Iowa City. Of course, our obstetric, orthopedic, and long drawn out cases are sent to Iowa City, if possible.

We did not have much of a discussion on socialized medicine or on the Social Security Act in our meetings because at that time we were working on the county medical relief plan under which we are now operating.

The society has never had an auxiliary and right

now there seem to be so many activities that the matter has been dropped.

A number of public health talks were given by different members in the schools and junior college during the year. There was not much immunization done in the city of Clinton proper because in the last four years we have put over two immunization programs for diphtheria and one for smallpox and the year before quite a little scarlet fever immunization was done. However, in the county outside of Clinton there were 465 individuals immunized against diphtheria and 109 against smallpox. We have no radio stations in the county; therefore we do no radio broadcasting.

Although our rotating plan for indigent care probably smacks somewhat of socialized medicine, the doctors themselves are handling the entire medical part; the only contact we have with the governmental force is for the list of indigents and reimbursement for their care. The medical society handles all other details such as the distribution of care and finances.

Ralph F. Luse, Deputy Councilor

**Delaware County.** The Delaware County Medical Society held six meetings in 1935. These were combined business and scientific meetings and were attended by about seventy-five per cent of our membership. Three new physicians located in the county; three new members were taken into the society; one member died. There are fourteen members and five eligible non-members in the county.

In March, 1935, the county medical society approved the public health tuberculosis project and it was carried out in April and May. Thirty-eight per cent of the pupils enrolled in our public schools received the Mantoux test and eleven per cent reacted positively. In June we invited the members of the surrounding county medical societies to meet with us and asked Dr. John Peck of Des Moines to interpret the radiographs taken during the project.

Three of our members took postgraduate work during the year; two gave public health talks. We actively supported by the Legislative Committee of the State Society.

We have a county contract for the care of indigent sick. We have been operating on the same fee schedule for two years. For 1935 we spent \$8,689.14 for medical aid and had an average of 404 cases per month on relief.

J. I. Jones, Deputy Councilor

**Dubuque County meetings:** During 1935 the Dubuque County Medical Society maintained a high degree of interest in scientific medicine. Nine regular, three special, and one anniversary meetings were held with a total attendance of 311, or an average attendance of about forty-five per cent of our membership. The society also had one public meeting at which Doctor F. L. Rector of Evanston, Illinois, gave a lecture on "The Prevention of Cancer" to 175 interested listeners. During the year the following guest speakers read interesting papers before the society:

Gordon F. Harkness, President, Iowa State Medical Society, Davenport.

T. A. Burcham, President, Iowa State Medical Society, Des Moines.

R. L. Parker, Secretary, Iowa State Medical Society, Des Moines.

A. W. Erskine, Councilor, Iowa State Medical Society, Cedar Rapids.

Felix Hennessy, Councilor, Iowa State Medical Society, Calmar.

Oliver J. Fay, Trustee, Iowa State Medical Society, Des Moines.

T. C. Denny, Medical Director, Iowa Emergency Relief Administration, Des Moines.

C. H. Warfield, Chicago, Illinois.

A. H. Connelly, Chicago, Illinois.

Max Cutler, Chicago, Illinois.

F. L. Rector, Evanston, Illinois.

Walter Fansler, Minneapolis, Minnesota.

Several of the talks were on the subject of socialized medicine and two on the Social Security Act.

Membership: There were no delinquent members in 1935. Three new physicians located in Dubuque County; two new members were added and one active member became an associate. There are now fifty-two active members in Dubuque County.

Legislation: The members were active in promoting the passage of the Iowa Basic Science Law. Many members saw our legislators personally and several went to Des Moines at the time the bill was being considered in the state Senate and House of Representatives. In addition many members circulated petitions and gave talks before lay groups indicating the importance of the legislation as a public health measure. The society was very pleased that the three Dubuque County members of the state legislature voted for the passage of the bill in spite of well organized political opposition.

Relief Work: As in previous years the medical care of relief patients has been efficiently carried on by the medical profession of Dubuque County through a lump sum contract. As far as is known there has not been a single complaint in regard to the character of the medical service rendered. The county still receives four times the amount of medical service it pays for, even on the basis of charges which are one-tenth to one-twelfth the minimum fee schedule of the State Medical Society. In the majority of cases doctors actually render medical and surgical care at a personal loss. Indeed, it is regrettable that the manner in which the medical profession has carried on its essential service during the national crisis of the last four years has not been an example for many of the self-seeking and self-interested "patriots" who have been, and are, infesting our national government.

Other Activities: Five members attended post-graduate courses. Ten public health talks were given by members of the Dubuque County Medical Society. No active immunization campaign was carried on but a great amount of immunization work was done by the doctors.

F. P. McNamara, Deputy Councilor

Johnson County. Summary of membership at the beginning of 1935:

Life .....	3	Nonresident .....	3
Active .....	102	Affiliate .....	2
Associate .....	10	Junior .....	62
<hr/>			
Total .....			182

Members paying no dues .....

3

Members paying full dues .....

115

Members paying local dues only.....

64

Life members: One lost by death. Net loss: 1.

Members paying full dues: Eight were received by application; four by transfer from junior membership; eight were lost by transfer to other societies and two were dropped for non-payment of dues.

Junior and Affiliate members: Twenty-two were received by application; thirty-six were lost by resignation, lapse, or removal from the county; four by transfer to full membership. Net loss, 18.

Summary of present membership (March, 1936):

Life .....	2	Nonresident .....	3
Active .....	100	Affiliate .....	2
Associate .....	14	Junior .....	44
<hr/>			
Total .....			165

Members paying no dues .....

2

Members paying full dues .....

117

Members paying local dues only.....

46

Ten regular meetings, nine of which included scientific programs, and one special meeting were held. The only guest speaker of the year was W. Wayne Babcock, M.D., of Temple University, Philadelphia. The May meeting was held jointly with the Cedar, Muscatine, Louisa, Washington, and Iowa County Medical Societies, under the auspices of the Administrator of the University Hospital. The average attendance for each meeting was 83 members and nine guests.

The foregoing is a report on the membership and meetings of the society, made by our secretary.

In addition I might add that our county society, or at least those members who are engaged in practice, has a contract which provides for all medical care of the indigent. It is the same plan in effect in our county last year.

Our society actively supported the State Society Legislative Committee. There is a plan in force in the county for immunization work. The local Lions Club supplies free diphtheria toxoid and smallpox vaccine; the work is done by individual physicians. However, there has been little response on the part of the public. About ten public health talks were given by our members and at irregular intervals members of the society have broadcast public health talks over our local radio station.

Geo. C. Albright, Deputy Councilor

Jones County. There are nineteen physicians in Jones County (Jones County has a population of 20,000). Of the nineteen, there are four ineligible



for membership in the county society. Of the fifteen eligible physicians, twelve have paid their 1936 dues.

During 1935 we lost one member by death and two were admitted by transfer from other county societies.

Because of the high quality of the scientific meetings held each month by the Linn County Medical Society, the medical profession of Jones County holds no scientific meetings but regularly attends the Linn County sessions. Four business meetings are held each year, with an average attendance of about 70 per cent of the members.

The Jones County Medical Society unanimously voted not to continue with the Iowa emergency plan for the care of the indigent and upon giving the County Board of Supervisors notice of this fact, we were asked to meet with Dr. T. C. Denny, medical director of the Iowa Emergency Relief Administration, and the County Board of Supervisors. At this meeting, held January 10, 1936, the action of the medical society was reconsidered. The plan then agreed upon was in effect the same as before except that if the bills were allowed by a committee of three physicians meeting with the County Board as an auditing committee, they would be paid in full, the County Supervisors agreeing to meet the difference between the amount of the bills and the amount of money granted by the I. E. R. A.

Socialized medicine is being debated and discussed at rotary clubs, topic clubs and high schools in our county.

We have no Woman's Auxiliary in Jones County.

T. M. Redmond, Deputy Councillor

Linn County. Four physicians located in Linn County in 1935. Three new members were taken into the county society. Six members moved out of the city and one died. We have three life members.

The society held ten scientific meetings at which the following out of town speakers appeared:

Wm. G. Olmstead, M.D., St. Louis, Missouri  
 Louis G. Herrmann, M.D., Cincinnati, Ohio.  
 Arthur F. Bratrud, M.D., Minneapolis, Minnesota.  
 Guy S. Van Alstyne, M.D., Chicago, Illinois.  
 Emil Novak, M.D., Baltimore, Maryland.  
 L. W. Dean, M.D., St. Louis, Missouri.  
 Geo. V. I. Brown, M.D., Milwaukee, Wisconsin.  
 Paul Hanzlik, M.D., Palo Alto, California.  
 John F. Erdmann, M.D., New York, New York.  
 H. B. Cushing, M.D., Montreal, Canada.  
 Arnold Jackson, M.D., Madison, Wisconsin.  
 Edw. Jackson, M.D., Denver, Colorado.  
 Arthur E. Hertzler, M.D., Halstead, Kansas.

A ten minute paper was also given by a member of the Linn County Medical Society at eight of the meetings. About eighty per cent of the members attended the meetings and at least five per cent attended postgraduate courses. The average attendance for the ten meetings was 215 physicians. The committee activities of the society are interprofessional relationships, public policies and legislation, publications, constitutional, medical relief, executive

council, tuberculosis, medical credit ratings, and the society actively supported the Legislative Committee of the State Society.

The indigents were cared for for three months under the plan devised by the Linn County Medical Society, which was satisfactory to everyone except the overseer of the poor and, apparently, the State Emergency Relief Administration, which failed to give it the support which we believed its many excellent features deserved. Later the poor were cared for under the Iowa uniform relief plan which was discontinued by the society in December. The indigent care is now rendered under a contract plan which retains many of the good features of the original Linn County plan. Dr. Morris Fishbein, Dr. Ray Lyman Wilbur, and Dr. Thomas A. Burcham spoke to the society on the subjects of socialized medicine and the Social Security Act.

At least fifteen public health talks were given by our members in 1935.

Nine 32 page issues of our bulletin were printed. The average monthly circulation was 900 and the bulletin was self-supporting. Thirty members of the society contributed original articles and abstracts in the bulletins.

L. M. Downing, Deputy Councillor

Jackson County. The Jackson County Medical Society has sixteen members in good standing, including one new member; none have removed or died. We have one life member. During 1935 the Jackson County Medical Society held four meetings which 85 per cent of the members attended.

There were no special committee activities except that of the legislative committee which made an attempt to function against adverse legislation, and adverse representation in the Iowa Senate.

Our economic plan is that of the Iowa Emergency Relief Administration as far as medical care for the indigent sick is concerned. We have no other contracts.

There were no discussions in our programs concerning socialized medicine or the Social Security Act; most of our members did, however, hear discussions on these subjects in the neighboring county society meetings.

We have a Woman's Auxiliary to which every eligible woman belongs. They have had two meetings this year.

There has been no public health work in the county in the past year.

G. C. Ryan, Deputy Councillor

#### Eighth Councillor District

The societies of the eighth district continued their activities during 1935 as in previous years. Each society is active, programs are good, comprising both local and imported talent. Most of the societies meet monthly, three meeting quarterly. Attendance averages probably seventy-five per cent for all counties. Harmony is predominant. The fact that the members of the society work well together has had the effect of

convincing the public that since doctors are good friends, they must be worth trusting. Each county has had an arrangement for the care of the indigent; this has worked especially well in Scott, Louisa, Washington, Henry, Jefferson and Van Buren counties. Muscatine, Des Moines, and Lee counties have had arrangements which have not been completely satisfactory. The State Emergency Relief plan has not proved very satisfactory, except in Van Buren county. However it seems to be one of the unpleasant features of the practice of medicine during the present period. The cooperative spirit of the doctors has been increasingly manifest and the future holds promise of great usefulness for the profession. We have little fear of state medicine or health insurance as long as doctors appreciate their responsibility. The meeting in Washington, December 19, with Congressman Eicher, demonstrated very conclusively that the medical profession has great power of an educational nature in the political field. This is an opportunity and a responsibility which must not be shirked.

C. A. Boice, Councilor

Henry County. There have been three new physicians located in the county in the past year; two new members in the county Society. Two members have been recommended for life membership in the State Society and one doctor has moved from the county.

The society held nine meetings during 1935. The programs were scientific and business; the average attendance is eighty per cent of the membership. There have been no postgraduate courses held in the county nor have the members attended elsewhere. The society sponsored a heart and lung clinic last fall. The society took an active part in legislative matters in the past year.

The Society has had a contract with the Board of Supervisors for several years providing for the payment for the care of the indigent. This contract has proved quite satisfactory and has been renewed for the year 1936.

Upon three occasions members of the society have given public health talks. The society has cooperated actively in the immunization of the school children against diphtheria. A large per cent of the school children are now immunized.

S. W. Huston, Deputy Councilor

Jefferson County. Jefferson County Medical Society has met each month, except for two months in the summer. Our meetings have been fairly regularly attended by the members and have been very instructive. Our society has put on an immunizing campaign against diphtheria, in the city, and we now have plans to immunize the country children throughout the county. In both these campaigns we have given our services free. We have held one chest clinic. We have a contract with the county Board of Supervisors for care of the indigent on a basis of fifty per cent recommended fee schedule of the State Society. We furnish the drugs. All patients are referred to us by the welfare worker. Our society was

fairly active politically last year; but apparently did very little good, for we had both senator and representative to fight. This year our Senator is a candidate for United States Representative. No new doctors, no deaths among the doctors in the county. No postgraduate courses.

Ira Nelson Crow, Deputy Councilor

Lee County: Keokuk. One new physician has located in Keokuk; three new members have been received into the society; one member moved to Topeka, Kansas. We have no members holding life membership in the State Society.

The society held four meetings during the year; the programs were social, scientific, and business; the attendance varies from eighty to one hundred per cent of the membership. Practically all of the committee activities of the year were centered about the relief problem; the society actively supported the legislative committee during the year.

The society cared for indigents for a time under the Emergency Relief plan. This proved very unsatisfactory. The society has recently adopted a fee bill to govern indigent work.

There have been several discussions concerning socialized medicine, during the year.

The society does not have a Woman's Auxiliary.

There have been several public health talks by members and the society has been active in immunizing against diphtheria.

A. M. Paisley, Deputy Councilor

Lee County: Fort Madison. Dr. I. W. Traverse of Fort Madison died during the year; there have been no new doctors or removals during this period. The county society held four meetings during the year, the programs being scientific and business. Twenty-three of the members have attended postgraduate courses. The society has been very active in attempting to secure a satisfactory arrangement for payment for the care of the indigent. The State Emergency Relief plan proved very unacceptable. Two meetings were held to discuss the Basic Science Law and the society took an active part in legislation. The society has reaccepted state aid for indigent care for a period. We do not have a woman's auxiliary. There have been no public health talks by members. Diphtheria immunization has been given to all beginners in the school.

R. L. Feightner, Deputy Councilor

Louisa County. Twelve regular meetings of the society were held. The programs were scientific and economic. No postgraduate courses or clinics have been held during the year.

Immunization campaigns have been suggested on the basis of a much reduced cost to the patrons, if the schools would take care of the record and of the indigent pupils, but we have had no response from the schools.

One death occurred during the year. One new doctor located in the county, Dr. E. T. Plowman, of Morning Sun.

During the early part of the year we had a contract with the Supervisors for the care of the in-



digent on the basis of a definite percentage of our regular fee schedule. Then the Board cancelled that contract and offered one of their own, which was slightly better from the doctor's viewpoint. No contract has yet been entered into for the year 1936.

A majority of the men still remain delinquent on State Society dues.

J. H. Chittum, Deputy Councilor

Muscatine County. We had a very satisfactory year with more interest and activity than has been customary.

There were nine meetings: eight scientific meetings. There was an average attendance of about sixty-five per cent.

In the city of Muscatine we gave the Schick test to about 1,900 individuals and gave diphtheria toxoid to more than 1,500.

Our members cooperated well in pre-school examinations and with the Board of Supervisors and Welfare in an immense amount of charity work, requiring more than the usual amount of sacrifice in proportion to the amount of funds available for this service.

Eight of our members attended the district meeting at Washington, Iowa, in conference with Congressman Eicher.

No new doctors and no deaths among our members in 1935.

T. F. Beveridge, Deputy Councilor

Scott County. Scott County Medical Society holds ten meetings during the year. For each of these ten meetings a speaker of note is secured. The society furnishes the dinner, after which the well attended meetings are held. This year the society sponsored a graduate medical course to the doctors in this vicinity. Physicians came from a distance of one hundred miles. One hundred thirty-seven attended the course; through good and bad weather it was well attended.

The society maintains an immunization clinic the year around. Every Saturday the poor may be vaccinated against smallpox or immunized against diphtheria.

Scott County Medical Society did a lot of political work in connection with the Basic Science Law and we hold ourselves in readiness at any time to assist the Legislative Committee.

Dr. Harry C. DeBorsey, Davenport, is the only new member. Dr. Wm. W. Bailey, Davenport, died during the year.

Lastly, the Scott County Medical Society sponsored one of the greatest meetings the State Society ever held.

A. P. Donohoe, Deputy Councilor

Van Buren County. Number of physicians eligible in county, 13. Number of members in county society, 13.

Meetings, four, mostly business sessions. We had two men from Des Moines in September. They presented a very good program but not many were present due to failure to get word to members.

Our contract for the care of the indigent is apparently satisfactory, much more so than the old flat fee which we will never accept again. Our county has

gone beyond its legal indebtedness, hence we are receiving help from the state. The "county" or old people are paid from county funds direct from Des Moines and so far are being paid one hundred per cent. The Iowa Emergency Relief plan is paying from fifty-eight to one hundred per cent, averaging perhaps seventy-five per cent.

Dr. Stephenson of Milton died the night of December 19, 1935. He has been succeeded in Milton by Dr. Mathews, who came from across the line in Missouri. Dr. Peppers of Birmingham and Dr. McClurg of Keosauqua gave up their practice and joined the CCC.

C. R. Russell, Deputy Councilor

Washington County. There have been no new physicians locating in Washington County the last year; there are no new members nor have there been any deaths or removals; there are four members who are life members of the State Society.

The society meets monthly except during July and August. The September meeting is a banquet to which the wives and friends are invited. The program is usually non-medical. The other meetings are scientific and business. Every physician in the county is a member of the society and the attendance at meetings is practically 100 per cent. There are several active committees sponsored by the society—cooperating with the Chamber of Commerce, health unit activities, public education, legislative activities, immunization campaign against diphtheria.

The legislative committee was very active during the last term of the legislature. The society has for several years had a contract with the Board of Supervisors for the care of the indigent. This contract is based on a percentage of the recommended Fee Bill of the State Society. This contract has proved quite satisfactory to the doctors, the board, and the indigent in its operations. The society has been active in education anent the Social Security Act. The society sponsored a meeting on December 19, of the physicians of the First Congressional District and its Congressman, the Hon. Mr. Eicher. Twenty-five per cent of the physicians attended this meeting. The result was good.

The society has a woman's auxiliary comprising about seventy-five per cent of the eligible women. They have confined their efforts to educational work.

There have been at least six public health talks by members; each year active immunization campaigns are carried on.

E. E. Stutsman, Deputy Councilor

#### Ninth Councilor District

The county societies of this district are all organized and hold regular meetings devoted to the consideration of medical problems, scientific, economic and social. There is still room for improvement but there has been an honest effort to study and discuss the various subjects and our professional organization, in general, is in a healthy state in the ninth district.

Appended hereto are the reports of the deputy councilors.

Harold A. Spilman, Councilor

Appanoose County. No new physicians located in the county during the year; four new members were admitted to the county society; three members were lost through death and removal; we have no life members.

Six meetings of the county medical society were held in 1935, combining scientific, social and business sessions. About one-third of our members attend the meetings. The subjects of socialized medicine and the Social Security Act were among those discussed.

The county society actively supported the Legislative Committee. Smallpox immunization work has been done among the children in the small towns and country.

The indigent sick are cared for in Appanoose County under the plan of the Iowa Emergency Relief Administration.

C. S. Hickman, Deputy Councilor

Davis County. One new physician located in the county; two new members were admitted to the county society; one member was lost through removal; we have four life members.

Eight county medical society meetings were held during the year, combining scientific, social and business sessions. A fair percentage of the membership attends the meetings.

County society activities include: support of the Legislative Committee, diphtheria immunization work.

We are working under the Iowa Emergency Relief set up for the care of the indigent sick in Davis County.

H. C. Young, Deputy Councilor

Keokuk County. One new physician located in the county; no new members admitted to the society; two members lost through removal; we have no life members.

Three meetings of the Keokuk County Medical Society were held. We combine scientific and business sessions; our attendance is about eighty-five or ninety per cent of our membership. At these meetings we had an informal discussion of the subject of socialized medicine.

Seven members of the society attended postgraduate courses. The county as a whole supported the Legislative Committee. County society also sponsored a tuberculosis clinic.

Several members of the society entered into individual contracts with the Board of Supervisors for the care of the indigent sick, after having agreed not to do so.

C. L. Heald, Acting Deputy Councilor

Lucas County. One member died; we have one life member.

Twelve meetings of the Lucas County Medical Society were held in 1935. These meetings were combined scientific, social and business sessions and were attended by about seventy-five per cent of the membership.

The county society was active in support of the Legislative Committee. It has also conducted diphtheria immunization work in the county.

We are under the set up of the Iowa Emergency Relief Administration for the care of the indigent sick.

R. C. Gutch, Deputy Councilor

Mahaska County. One new physician, C. D. N. Gilfillan, located in the county in 1935; two new physicians were admitted to the county society; no members were lost; we have no life members.

Twelve meetings of the Mahaska County Medical Society were held during the year, combining scientific, social and business sessions. Our attendance is about fifty per cent of our membership.

Ten of our members attended postgraduate courses. The county was very active in supporting the legislative Committee. Other activities of the society include: supporting postgraduate course at Newton; sponsoring tuberculosis testing program in Oskaloosa; giving health examinations to 4-H Club members in the county.

The medical care of the indigent in Mahaska County is provided under the set up of the Iowa Emergency Relief Administration.

L. F. Catterson, Deputy Councilor

Marion County. No new physicians located in Marion County in 1935 and no new members were added to our number. One member removed and two died. We have no life members. Three meetings, only, were held during 1935; two were scientific and one business. Attendance at meetings has averaged ninety-five per cent of the total membership. Two of our members attended postgraduate courses.

Marion County is one of the bankrupt counties. In consequence since April, 1935, we have cared for the indigent under the set up of the Iowa Emergency Relief Administration. This plan hasn't worked out to the liking of all the members and a majority would be overjoyed to return to the Marion County contract plan.

We have had no formal discussion of the subjects of either socialized medicine or the Social Security Act but both topics have had plenty of informal discussion whenever our medical group has met.

We gave our whole hearted support to the Legislative Committee. The Senator from our district was one of our number and hence helped the cause but our Representative was out of line from first to last in spite of our contacts with him.

In 1935 our Woman's Auxiliary won a trophy for one hundred per cent membership. They were active in the state health essay contest and in the health programs sponsored by the Federated Women's Clubs.

Three public health talks were given by our members this year, two before Rotary Clubs and one before a Parent-Teachers Association gathering. One public program relative to school health problems was rendered by members at Knoxville. A diphtheria immunization program was carried out routinely in the various communities of the county as has been done for the past decade.

We have no radio station in the county so can't broadcast public health talks, although two of our



members have been honored by having been chosen as speakers for the Iowa State Medical Society broadcasts over WSUI and WOI.

C. S. Cornell, Deputy Councilor

Monroe County. One new physician located in the county in 1935; one new member was admitted to the society; one member moved out of the county; we have three life members.

Four county medical society meetings were held, three of which were scientific and business and one social. Our usual attendance is one hundred per cent of the members. Two members report attending postgraduate courses.

The county society actively supported the Legislative Committee.

The Iowa State Emergency Relief plan is in force in Monroe County for the medical care of the indigent. This plan is not at all satisfactory.

We have a Woman's Auxiliary to which all eligible women belong.

T. A. Moran, Deputy Councilor

Wapello County. No new physicians located in the county in 1935; one new member was admitted to the society; six members were lost through death or removal; we have one life member.

Seventeen meetings of the Wapello County Medical Society were held. These are scientific, social and business meetings and are attended by about ninety or ninety-five per cent of our entire membership. Among the subjects discussed were those of socialized medicine and the Social Security Act.

Activities of the individual members: twelve took postgraduate work; public health talks given by about twelve.

County society activities include support of the Legislative Committee; care of relief cases; care of county poor; immunization of individuals through the county against typhoid following flood.

The Board of Supervisors of Wapello County employ a county physician to take care of the indigent.

Our Woman's Auxiliary has one hundred per cent membership. In addition to their social activities they assist Sunnyslope Sanatorium financially, promote better public understanding of medical problems, donated a subscription to Hygeia to Sunnyslope Sanatorium.

D. L. Rater, Deputy Councilor

Wayne County. No new physician located in our county in 1935; no new members; one member moved away; we have no life members.

We had three meetings of our county medical society. Our meetings combine scientific, business and social sessions and are attended by about ninety per cent of our membership. Both socialized medicine and the Social Security Act were among the subjects discussed.

Eight of our members took postgraduate work; about ten public health talks were given by members. The county society actively supported the Legislative Committee. We also did extensive immunization work in the schools.

We are using the Iowa Emergency Relief Admin-

istration plan for the medical care of the indigent in Wayne County.

We have a Woman's Auxiliary to which every eligible woman belongs.

S. W. Corbin, Deputy Councilor

### Tenth Councilor District

I submit herewith the following reports from the deputy councilors of the tenth councilor district:

Adair County. One new physician located in the county in 1935; one new member was admitted to the county society; one member moved away; we have no life members.

Three county medical society meetings were held during the year. These were business meetings and were attended by the entire membership.

About eighty per cent of the members attended postgraduate courses.

The society as a whole was active in its support of the Legislative Committee.

About three public health talks were given by our members; the only immunization work done in the county was that done in private practice.

We have a contract with the Adair County Relief Office for the medical care of the indigent. It was adopted in June 1935 and has proved rather satisfactory. It is a modified fee schedule contract which is cumulative in monthly allowances. The physicians make up their own fee schedule.

A. S. Bowers, Deputy Councilor

Adams County. One new physician located in the county; one new member was admitted to the county society; one member moved away; we have one life member at present, two more members are eligible for this honor.

There were six meetings of the Adams County Medical Society. These meetings were combined scientific, social and business sessions and were attended by the entire membership.

The county was active in support of the Legislative Committee.

Six members took advantage of postgraduate courses during the year.

We have no plan for the medical care of the indigent of the county.

W. F. Amdor, Deputy Councilor

Clarke County. No new physicians located in the county; no new members taken into the society; one member moved away; we have no life members.

We had four combined scientific and business meetings during the year. Our meetings are attended by the entire membership.

Three members attended postgraduate courses; one public health talk was given by one of our members.

The county society supported the Legislative Committee of the State Society.

Clarke County is working under the set up of the Iowa Emergency Relief Administration for the medical care of the indigent.

H. E. Stroy, Deputy Councilor

Decatur County. One new physician located in the county and was admitted to membership; three members were lost through death and removal; we have four life members.

Four business meetings of the society were held during the year; the attendance was one hundred per cent. Our society is very small—consists of our four life members and four younger men. Two other eligible men are not interested or financially unable to belong. Monthly meetings of the Decatur County Hospital staff are held with this same group. At these meetings scientific programs are put on locally. The county society gets outside speakers on special occasions. At our meetings we have discussed the subject of socialized medicine.

The county society sponsored a postgraduate course at the Decatur County Hospital last spring, which all of the members attended. Several health talks have been given by our members and a great deal of immunization work done; diphtheria immunization at Lamoni and Garden Grove; tuberculosis testing at Leon. The county society was active in its support of the Legislative Committee.

We do not have a contract for the care of the indigent sick but have an agreement based on a fee schedule.

J. E. McFarland, Deputy Councilor

Madison County. Two new physicians located in the county; two new members admitted to the society; one member lost through death; we have two life members.

Ten scientific program meetings held during the year, attended by about eighty per cent of the membership. The subject of socialized medicine was among those discussed.

One member attended postgraduate courses; public health talks were given by about four of our members. No concerted immunization work done in the county in 1935.

The county society actively supported the Legislative Committee.

Madison County is under the Iowa Emergency Relief plan for the care of the indigent sick.

C. B. Hickenlooper, Deputy Councilor

Ringgold County. No new physicians nor members in 1935; one member moved away; we have no life members.

We have a regular meeting of the county society each month. Our programs are combined scientific, social and business. The entire membership attends the meetings. Both the subjects of socialized medicine and the Social Security Act were discussed.

Postgraduate courses were attended by three members.

The county society was active in its support of the Legislative Committee of the State Society.

The Ringgold County Medical Society has a lump sum contract of \$3,000.00 annually for the medical care of all cases unable or not disposed to pay. The contract is not entirely satisfactory but we believe it is the most satisfactory that we could secure.

E. J. Watson, Deputy Councilor

Taylor County. No change in the membership status during the year; no new physicians located in the county; we have two life members.

Two meetings of the county medical society were held. The meetings were combined scientific, social and business, attended by more than ninety-five per cent of our membership.

Two members attended postgraduate courses.

Society activities included supporting the Legislative Committee and sponsoring a chest clinic.

We are working under the medical relief plan of the Iowa Emergency Relief Administration which is not at all satisfactory.

G. W. Rimel, Deputy Councilor

Union County. One new physician located in the county but he is not eligible for membership; we lost one member through removal; we have two life members.

There were thirteen meetings of the county society, twelve of which were the regular monthly society meetings. The thirteenth meeting was a tuberculosis conference. Our meetings are scientific and are attended by about seventy per cent of our membership. The subjects of socialized medicine and the Social Security Act were among those discussed.

Four members took the postgraduate course offered at Leon. Public health talks were given by four or five of our members.

Other society activities were: support of the Legislative Committee; tuberculosis survey; 4-H Clubs and Boy Scouts health examinations.

Union County has the set up of the Iowa Emergency Relief Administration for the medical care of the indigent.

John C. Parsons, Deputy Councilor  
J. G. Macrae, Councilor

#### Eleventh Councilor District

Submitted herewith are reports from all the counties comprising the eleventh councilor district. Since they give a comprehensive review of the individual societies, I will not enlarge on the activities of the various county societies.

During the year of 1935 there were two postgraduate courses held in this councilor district under the auspices of the Speakers Bureau of the Iowa State Medical Society. One in the spring was sponsored by the Pottawattamie County Medical Society and was held in Council Bluffs. The fall course was sponsored by the Cass county Medical Society and was held at Atlantic. Both of these courses were well attended and by members from practically every county society in the district. These courses were well arranged and created a great deal of interest among those who attended.

A District meeting was held in Logan in December for the sole purpose of discussing the Social Security Act. A free discussion of the part the profession in this district would play in the activities of the Social Security Act under the guidance of the State Department of Health was entered into by everyone present. The conclusion of those present was that



they were not satisfied with the measure at all but would cooperate as long as it was administered under the direction of the State Department of Health and working in harmony with the Iowa State Medical Society. We were unable to have the Congressman of this district with us for the meeting but a committee was authorized to formulate the views of the medical men in this district with reference to health insurance and to forward this viewpoint to the congressmen and senators. This committee is to meet in the near future for this purpose.

During the course of the year the societies of this district became so completely dissatisfied with the medical plan of the Iowa Emergency Relief Administration that they unanimously asked the Iowa State Medical Society to withdraw its approval and cooperation with the Iowa Emergency Relief Administration in the promotion of the plan.

M. C. Hennessy, Councilor

Audubon County. One new physician located in the county in 1935; one new member was taken into the county society; no members were lost; we have one life member.

Four combined scientific and business meetings were held during the year, attended by ninety per cent of our membership. The question of socialized medicine was among those discussed.

Four members attended postgraduate courses. Public Health talks were given by a few of our members. No general immunization work was carried out in the county.

The society was active in its support of the Legislative Committee.

We have no special arrangement for the care of the indigent sick.

W. H. Halloran, Deputy Councilor

Cass County. Two new members located in the county in 1935, both of whom have submitted their applications for membership; two members were lost by removal and death; we have one life member.

Two combined scientific and business meetings were held, attended by about seventy-five per cent of the membership. The subjects of socialized medicine and the Social Security Act were among those discussed.

Thirteen members of our society attended the postgraduate courses given in this district. Public health talks were given by a couple of our members. Toxoid was administered in the schools of Atlantic.

The county society actively supported the Legislative Committee.

Cass County is under the set up of the Iowa Emergency Relief Administration for the care of the indigent sick.

We have a Woman's Auxiliary to which about sixty per cent of the eligible members belong. They have used their influence in health matters in various women's organizations to which they belong.

R. L. Barnett, Deputy Councilor

Fremont County. No new members located in the county; no new members admitted to the society; one physician of the county died but he was not in practice; we have no life members.

About six meetings of the county medical society were held. The meetings were combined scientific, social and business sessions, attended by about eighty per cent of our membership. The subjects of socialized medicine and the Social Security Act were among those discussed.

About fifty per cent of our members took advantage of the postgraduate courses given in this district. Public health talks were given by a couple of members. The society cooperated in supporting the Legislative Committee and in smallpox and diphtheria immunizing campaigns in the county.

The plan in force in our county for medical care of the indigent is a twenty-five per cent discount from the regular fee schedule.

A. E. Wanamaker, Deputy Councilor

Harrison County. No change in the membership status of the county; no new physicians located here; we have no life members.

Twelve scientific sessions of the county society were held. Our meetings are attended by about seventy-five or eighty per cent of our members. Both socialized medicine and the Social Security Act were among the questions considered.

About fifty per cent of our members took postgraduate courses during the year. Society activities included support of the Legislative Committee and diphtheria immunization work in the county.

Harrison County is working under the medical plan of the Iowa Emergency Relief Administration for the care of the indigent.

We have a Woman's Auxiliary to which about fifty per cent of the eligible members belong.

E. J. Cole, Deputy Councilor

Mills County. Three new members located in the county in 1935; three new members admitted to the society; no members were lost; we have two life members.

Four meetings of the county medical society were held. The meetings are combined scientific, social and business sessions, attended by about ninety-eight per cent of our membership. One of the subjects discussed was the Social Security Act.

Five members took advantage of nearby postgraduate courses.

Our society actively supported the Legislative Committee.

The only immunization work was that done individually.

We have a Woman's Auxiliary with a one hundred per cent membership.

T. B. Lacey, Deputy Councilor

Montgomery County. Two new physicians located in the county; one new member admitted to the county society; no members were lost; we have no life members.

One business session of the society was held in 1935.

Four or five of our members took postgraduate work during the year. As individuals we supported the Legislative Committee of the State Society.

The county is using its own funds for medical care

of the indigent but the set up is practically the same as that of the Iowa Emergency Relief Administration.

J. C. Cooper, Deputy Councilor

Page County. No change in membership status; no new physicians located in the county; we have no life members.

Two business meetings of the society were held during the year, attended by about seventy-five to ninety per cent of our membership. We discussed the subject of socialized medicine.

Six or eight members regularly attended the postgraduate courses given in this district; others attended part of the time. A couple of public health talks were given by our members. No special immunization work was done in the county.

The society was active in its support of the Legislative Committee.

There are two radio stations in the county but our society does not broadcast public health talks.

We are under the set up of the Iowa Emergency Relief Administration for the care of the indigent sick in our county. This plan is not working wholly satisfactorily.

J. F. Aldrich, Deputy Councilor

Pottawattamie County. No new physicians located in the county in 1935; no new members admitted to the society; one member lost through death; we have one life member.

Eight weekly meetings were held during the southwest Iowa postgraduate course held at Council Bluffs in the spring, usual monthly business and scientific meetings and about ten business meetings having to do with other urgent business. About seventy-five per cent of our membership attends the meetings. The questions of socialized medicine and the Social Security Act were among those considered.

About thirty-five or forty of our members attended postgraduate courses.

We have the following committees, whose duties are implied in the name of the committee: program, public relations, legislative, woman's auxiliary, University hospital, treatment of syphilis, checking committee, consultation committee. In the case of the University Hospital Committee all applications for Iowa City commitment must be accepted by this Committee before such cases may be hospitalized, this by direct agreement with the University Hospital authorities. The Committee on Syphilis, the Checking Committee and the Consultation Committee confined their services to matters pertaining to statutory poor and unemployed employables being cared for by the Iowa Emergency Relief Administration.

In addition to these activities the society actively supported the Legislative Committee of the State Society and continues to cooperate in the school program for immunization against diphtheria as outlined in the Society Journal for January, 1935.

We have a fee schedule contract with our Board of Supervisors for the medical care of the indigent in our county.

We have a Woman's Auxiliary to which about eighty per cent of the eligible members belong. They presented Dr. W. W. Bauer of the American Medical Association to the Council Bluffs high schools as a speaker. They also distributed to the Parent-Teachers Association council material on activities of the Speakers Bureau, including lists of subjects discussed last year; notified Parent-Teachers Associations of American Medical Association broadcasts; furnished material to high schools for debate on socialized medicine; sponsored health essay contests in local schools; attended Parent-Teachers Association council meetings and provided speakers to schools for May health programs, through the State Society; finished immunization program against diphtheria in which approximately 4,000 school children were immunized. They also completed the food demonstration programs at which five hundred mothers were taught how to properly prepare food supplied to them by the county.

Public health talks were given by several members of our county society.

There is a radio station in our county but the county society does not broadcast public health talks over it. Members of our society are used by the Speakers Bureau to give health talks on their broadcasting periods at Ames and Iowa City.

Jack V. Treynor, Deputy Councilor

Shelby County. One new physician located in our county, Dr. T. T. Smith of Shelby; no new members admitted to the society; one member moved away; we have no life members.

Two meetings of the county medical society were held during the year. Our meetings are usually combinations of scientific, social and business sessions, attended by about eighty per cent of our membership.

About four or five of our members attended postgraduate courses; one public health talk was given by one of our members. Diphtheria immunization work was carried out in two towns in the county. Other society activities include: infant welfare clinic; public health; support of the Legislative Committee.

We have an agreement with our Board of Supervisors for the care of the indigent sick, which is based on a fee schedule.

A. L. Nielsen, Deputy Councilor

Dr. F. A. Hennessy: I have nothing to add. I just move that it be accepted.

*The motion was put to a vote and carried.*

President Burcham: Reports of Council Committees. Speakers Bureau Committee, Dr. Glomset, Chairman.



## Reports of Council Committees

### SPEAKERS BUREAU COMMITTEE REPORT 1935

As we of the Speakers Bureau Committee review the work accomplished in 1935, we can see certain landmarks which indicate that the Bureau is progressing toward the accomplishment of its purpose. In striving to increase the efficiency of the practitioner in Iowa, we find that we have reached 679 physicians through our postgraduate courses. In the effort to promote the solidarity of the profession and develop medical leadership in each community, we have planned programs for 44 county medical societies, and for 11 district meetings. In the work of educating the public in the problems of health we have presented a total of 111 talks before such audiences as Woman's Clubs, Parent-Teacher Associations, Chambers of Commerce, and other service clubs.

It is difficult to say how much good has been rendered through the above media, but because the number of requests from lay organizations has more than doubled in number in the past year, and because the attendance at the postgraduate courses is steadily growing, it seems evident that the work is valuable and should be continued on an expanding scale.

The principal phase of the work of the Bureau is the postgraduate courses. We presented eleven courses during 1935, reaching a total of 679 physicians, a gain of about 225 over the high figure of previous years. This increased enrollment is due in part, we feel, to the caliber of courses presented, but not entirely, as more and more physicians are coming to realize the value of these courses, and to appreciate the ease of acquiring the latest knowledge of medical advances. Our first course was one in general therapeutics presented at Council Bluffs, for which 82 men enrolled. The faculty for this course was drawn largely from outside the state, and we are very grateful to those men who gave their time and efforts to make this course a success.

Three laboratory courses were presented next at Independence, Hampton and Emmetsburg, with an enrollment at Independence of 53 men, at Hampton of 47 men, and at Emmetsburg of 38 men. The lecturers were Iowa men who were exceptionally well qualified to present the course, and the enthusiastic response we received from the members testifies eloquently to the ability of these teachers to help in the work of postgraduate education.

Two clinic courses were presented, one at Leon and one at Decorah, with an enrollment of 30 physicians at both places. The teachers for these courses came both from Iowa and from outside the state.

A course in general therapeutics and diagnosis was presented during the autumn at Charles City and Davenport, with about 125 men enrolled at both places, the largest enrollment ever attained for any

course. A series of ten lectures was given. The lecturers were able clinicians from various sections of the United States, as well as from our own College of Medicine. The men who attended these courses classified them as outstanding.

A course in cancer was given at Newton to a group of 49 physicians. Lecturers who are well known for their work on this subject came to Newton from Minneapolis, Rochester, Chicago, Iowa City and Des Moines. University courses in medicine and surgery were presented at Atlantic and Cherokee, with an enrollment of 47 at Atlantic and 53 at Cherokee. These courses were considered excellent by those attending, and we received very favorable comments regarding them.

The uniformity of favorable criticism of the courses has encouraged us to go ahead with plans for even better courses for 1936. It has been suggested that eight meetings be held instead of the usual ten, and that will be tried during the spring months. There will be no let-up in this activity of the Speakers Bureau, but rather an increased effort for the best in medical education for Iowa.

The programs for eleven district meetings were planned during the year. Cooperating with the State Department of Health, we presented a symposium on immunization at various centers during the fall. A symposium on socialized medicine was given earlier in the year in several districts.

We planned meetings for twenty county medical societies, and for twenty-two heart and chest clinics, using 67 different men.

Our greatest advance came in the number of talks presented to lay organizations. During 1934 we presented 54 such talks, and in 1935 we presented 111. We arranged 51 talks to Parent-Teacher Associations; 21 to Woman's Clubs; and 39 to service clubs and Chambers of Commerce. For these 111 talks, 98 different men were used.

We presented 52 radio talks during the year, which were written by different men in each instance. We continue to have many calls for copies of these talks, and from these demands we can estimate a minimum listening audience of fifteen thousand people weekly. These radio talks are presented over WOI at Ames, and WSUI at Iowa City. We are greatly indebted to Dr. J. F. Edwards of Ames and Dr. M. E. Barnes of Iowa City for their kindness in helping us each week with these presentations, as well as to the radio stations for the privilege of these regular broadcasting periods.

We strive for better education of the public in health matters in a third way, by cooperating with the Woman's Auxiliary in their annual health essay contest. The subject upon which high school students throughout the state submitted essays in 1935 was "Disease Prevention and Health Protection." The essays received were of very high caliber, proving that the students had been studying the subject

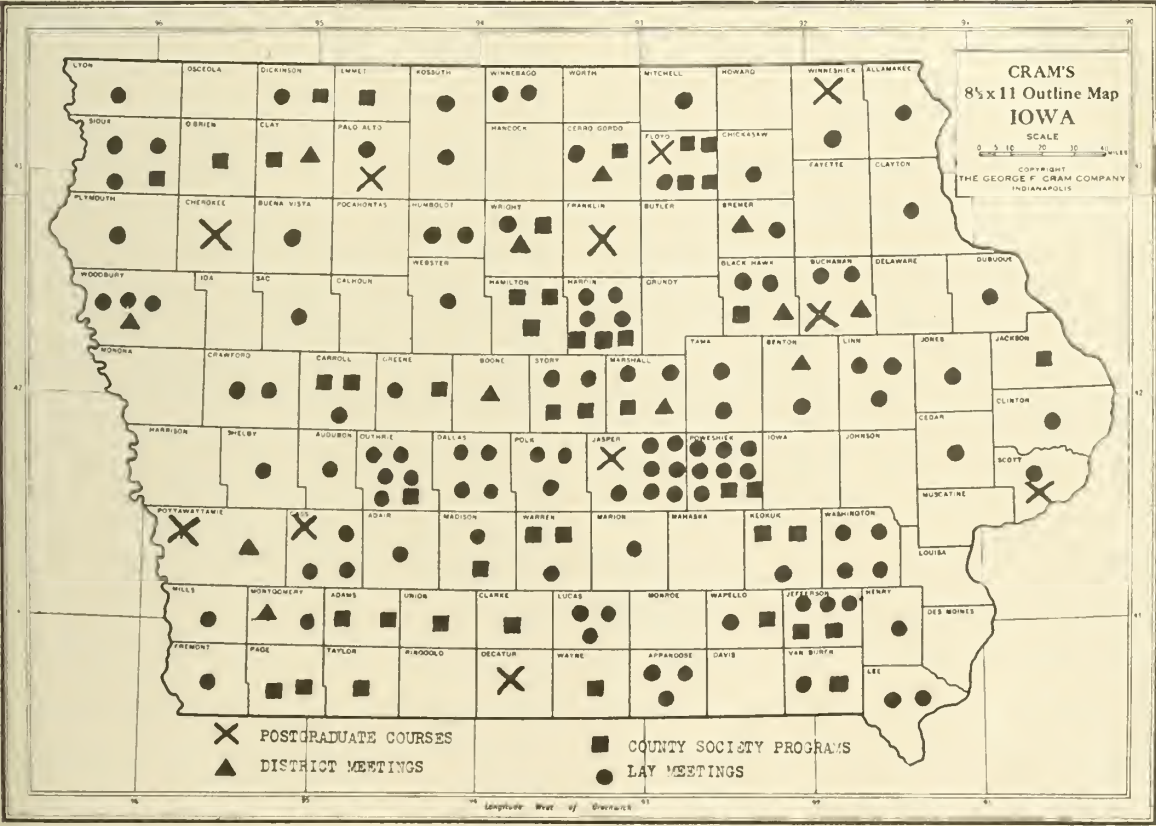
diligently, thus gaining valuable knowledge which we trust will help them in later years. This is a work in which we are glad to cooperate. To the winner of the contest, the Speakers Bureau offered a trip to WOI for the purpose of broadcasting the essay which won first prize.

A summary of the activities of the Bureau is given in the accompanying map. This map shows graphically the portions of the state which are not utilizing the services of the Bureau. Since we are organized for the good of all members, we regret that some counties are not taking advantage of what we have to offer, and would be very glad to have them call upon the Bureau for help in planning county society programs, for talks to lay audiences, or for postgraduate courses.

In conclusion, may we present our financial statement, first for the year 1935, and then for the six years of our existence.

Total Receipts 1930 Through 1935	
1930	\$ 2,780.00
1931	3,939.34
1932	2,805.58
1933	4,850.70
1934	5,550.90
1935	6,351.97
\$26,278.49	
Total Disbursements 1930 Through 1935	
1930	\$ 306.26
1931	3,949.97
1932	5,855.70
1933	3,744.06
1934	4,316.30
1935	5,435.56
\$23,607.85	
Total Surplus.....	\$ 2,670.64

During 1933, 1934, and 1935 the Speakers Bureau Committee has been allowed \$100.00 per month from the budget, or a total of \$3,600.00. Our surplus of \$2,670.64, if subtracted from this allowance, would show that over a period of six years the Bureau has financed its own activities except for \$929.36. In other words, the State Society has been called upon to provide \$929.36 for the work of this department



1935	
Receipts from Postgraduate Courses.....	\$ 5,120.17
Travel Expense Refund .....	31.80
From Dues.....	1,200.00
\$ 6,351.97	
Travel Expense.....	\$ 968.85
Printing and Stationery.....	277.18
Postgraduate Courses .....	2,539.69
Radio Talks.....	96.65
Telephone and Telegraph.....	185.04
Salary .....	1,290.00
Miscellaneous .....	77.85
\$ 5,435.56	
Surplus for 1935.....	\$ 916.41

in the total period of its existence. We are very proud of this report, as we feel that the work has been of enough value to be worth the expenditure of many times this amount. It is our endeavor to keep the work as nearly self supporting as possible, but with the increased demands for talks to lay organizations which we have received, we may find it necessary to draw upon the allowance to carry on the work of educating the public in problems pertaining to health.

Daniel J. Glomset, Chairman



Dr. Glomset: Mr. Chairman, with your permission, I beg to present the report of the Speakers Bureau as given on page 51 in the Handbook and *move* its acceptance.

*The motion was put to a vote and carried.*

President Burcham: Cancer Committee, Dr. McNamara, Chairman.

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### REPORT OF THE CANCER COMMITTEE

At a meeting of the Council of the Iowa State Medical Society on October 10, 1935, it was necessary to reorganize the Cancer Committee because of the resignation of Doctor William Jepson as chairman and as state chairman of the American Society for the Control of Cancer. At that time the general Cancer Committee was formed, consisting of the members of the Council, Dr. D. J. Glomset of the Speakers Bureau, Dr. E. D. Plass of the State University, and Dr. F. P. McNamara, Iowa representative of the American Society of the Control of Cancer. Doctors A. W. Erskine, E. D. Plass and F. P. McNamara were designated as the Executive Cancer Committee with the latter as chairman.

The program to be carried out during the winter months was outlined as follows: Each councilor was to appoint a chairman-physician in charge of the cancer program in each county. The chairman was to make arrangements for meetings in his county. The speakers were to be furnished through the Executive Cancer Committee or through the cooperation of the Speakers Bureau. In general, this program was carried out very effectively in most parts of the state in spite of the severe winter. Great interest has been shown by all lay groups and especially by Women's Clubs, Parent-Teacher Associations, Nurses' Training Schools, Colleges and Service Clubs.

In January, Doctor F. L. Rector, of the American Society for the Control of Cancer, spent a week in Iowa during which time he gave illustrated lectures before the Dubuque University, Coe College, Iowa State University, Grinnell College and Iowa State Teachers College. He also spoke before nurses, Women's Clubs, and other lay groups. It was estimated that he addressed approximately 1,800 adults. In February, 1936, at a meeting of the members of the Executive Cancer Committee and representatives of interested lay groups, Mrs. Carl W. Illig, Jr., Public Health Chairman for the General Federation of Women's Clubs, and special representative of the American Society for the Control of Cancer, outlined plans for the organization of an Iowa Division of the Woman's Field Army for the Control of Cancer. At the meeting the plans for such an organization were approved and it was voted to form a state advisory and executive committee consisting of a representative of the Iowa State Department of Health, three representatives of lay groups and the three members of the Executive Cancer Committee of

the Iowa State Medical Society. At the present time this committee is being organized and it is hoped that the development of the statewide plan will be completed in the fall. This work will be in cooperation with the American Society for the Control of Cancer.

The Committee has developed a series of articles on various types of cancer and it will be published under the title of "Minimum Standards of Diagnosis and Treatment of Cancer for Iowa Physicians." Dr. E. D. Plass of the Committee is developing a similar series of articles on cancer for the lay public which will be issued later under the auspices of the Iowa State Department of Health. The Committee has also requested space in the Iowa State Medical Journal for publications on cancer. Dr. J. H. Randall of the State University has consented to edit such articles.

The members of the general and of the Executive Cancer Committee regret the resignation of Dr. William Jepson. They found the ground work for an active cancer campaign well prepared and it is the hope of the members that Dr. Jepson's well known plans for the control of cancer through education will gradually be fulfilled in Iowa.

#### Executive Cancer Committee.

Arthur W. Erskine,  
E. D. Plass,  
F. P. McNamara, Chairman

Dr. McNamara: There is just a little I would like to add to the report as printed in the Handbook. First, I want to express my appreciation to all the members who arranged for cancer meetings this last year. It was rather a bad year for meetings, but, nevertheless, there were approximately sixty special lectures on cancer throughout the state.

I want to urge you to continue this work, especially this coming fall. There is a good deal of interest; there is a certain amount of opposition to overcome, especially in the case of women, but it can be done with a little diplomacy. We hope to cover the whole state, having at least one lecture on cancer in every county in the next year. I beg your support.

*I move* that the report as printed in the Handbook be accepted.

*The motion was put to a vote and carried.*

President Burcham: Committee on Professional Relations, Dr. Watson, Chairman.

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### REPORT OF THE COMMITTEE ON PROFESSIONAL RELATIONS

To the Council:

The history of the work of the Committee on Professional Relations should be familiar to those who have been in the House of Delegates year after year. Starting a number of years ago from the nucleus of a joint committee of the Iowa State Medical Society and the Iowa Pharmaceutical Association, it was extended to include the five profes-

sions now named as components—medical, dental, pharmaceutical, veterinary and nursing. It was enlarged to include these allied professions and designated as the Council Committee on Professional Relations by approval of the House of Delegates at the Sioux City session in 1932.

From this point, the progress toward the objective was rather slow for various reasons. The course was uncharted, and having no pattern, the representatives of the various professions had to work out the type of organization desired, featuring points that would be of common and mutual advantage to the several professions, and, quite as important, avoiding the establishing of precedents which might later prove disastrous. Contributing also to the delay was the fact that the plan, in the successive stages of its development, must be approved by each profession at its annual session. These intervals of a year were not consistent with speedy development.

The first definite and unified action was in 1935, when each profession at its annual meeting adopted a resolution favorable to interprofessional organization and appointed delegates to meet with delegates from the other professions for further consideration of the subject.

These delegates met in Des Moines on January 19, 1936, each profession having full representation. They voted unanimously for an interprofessional organization, and adopted a constitution, which will be considered by each profession at its 1936 annual meeting. Two of the five professional associations have already approved this action of their delegates. The Iowa Veterinary Medical Association met in January; the Iowa Pharmaceutical Association met in February. Both organizations approved the constitution and by-laws drawn up for the Iowa Interprofessional Association. Our own House of Delegates voted that the representatives of the Iowa State Medical Society to this state interprofessional organization should be the three members of the Committee on Public Policy and Legislation. Your Committee on Professional Relations was also represented. The Legislative Committee, however, is a Committee of the House of Delegates, and responsible to the House. For that reason, the reports of the deliberations of the delegates of the five professions and the constitution and by-laws adopted by them are incorporated in the report of the Legislative Committee. This report should be studied by each delegate before our annual meeting.

While relatively few counties were organized in the important legislative year, 1935, the allied professions in many unorganized counties rendered valuable assistance. Now that definite statewide interprofessional organization is taking form, your committee feels that much can be accomplished.

Through no fault of the county society officers, reports from the counties are not available for the handbook. We hope to include these in a supplemental report to the House of Delegates.

Respectfully submitted,

E. J. Watson, Chairman  
W. R. Brock  
D. C. Konzett

Dr. Watson: I *move* that the report of the Committee on Professional Relations as printed in the Handbook be accepted.

*The motion was put to a vote and carried.*

President Burcham: Committee on Public Relations, Dr. Evon Walker, Chairman.

## REPORT OF THE COMMITTEE ON PUBLIC RELATIONS

To the Council:

The Committee on Public Relations has been rather inactive during 1935 due to the fact that most of the problems which have been referred to it seem to overlap with the duties and activities of committees that are all ready well established in the State Society.

A more detailed report will be given at the meeting of the House of Delegates.

Evon Walker, Chairman

Dr. Walker: Mr. President, the report in the Handbook is very short, but it covers all that has been done. As is customary, I *move* that the report as published in the Handbook be accepted.

*The motion was put to a vote and carried.*

President Burcham: Memorials and Communications, Dr. Parker.

Secretary Parker: We have several communications here from other societies. I will designate the nature of the communications and move their reference to the proper bodies.

A communication from the Ohio State Medical Society. That communication considers the question of graduates of medical schools and colleges. I *move* that it be referred to our Committee on Medical Education and Hospitals.

*The motion was put to a vote and carried.*

Secretary Parker: A communication from the New Jersey State Medical Society. It involves the question of medical economics. I therefore *move* that this communication be referred to our Committee on Medical Economics.

*The motion was put to a vote and carried.*

Secretary Parker: Communication from the Philadelphia County Medical Society regarding the meeting of the American Medical Association in Philadelphia in 1937. I *move* that that be referred to the Delegates to the American Medical Association.

*The motion was put to a vote and carried.*

Secretary Parker: I have a telegram from the Radiological Society of North America, reading thus:

"The Radiological Society of North America extends to you, Dr. Burcham, as President of the Iowa State Medical Society, best wishes for a most successful and profitable meeting. We extend to the Iowa



State Medical Society our congratulations, felicitations and best wishes."

The Secretary will consider the approval of an acknowledgment of this telegram from the Radiological Society of North America.

Dr. Downing: I *move* that it be replied to in kind.

*The motion was put to a vote and carried.*

Secretary Parker: We have a number of communications from county medical societies requesting Life Membership for some of their members. I will read them, designating the county medical society in which the application is made:

L. J. Leech, West Branch; Chas. H. French, Cedar Rapids; G. M. Lee, Thompson; Joseph H. McGready, Independence; A. P. Johnson, Sigourney; W. H. Thomsen, Winterset; Thomas C. Denny, Des Moines; E. I. Woodbury, Burlington; M. C. Mackin, Mt. Pleasant; C. W. Gardner, Mt. Pleasant; O. A. Geeseka, Mt. Pleasant; G. M. Van Ausdall, New London; J. A. Williams, Belle Plaine.

Secretary Parker: I *move*, Mr. President, that Life Membership be granted those applicants.

Dr. Goenne: I would like to add to those the names of Dr. Frederick Lambach and Dr. Edward Taylor of Scott County. Both of them have been voted in as Life Members of Scott County.

Dr. Putnam: I would like to ask Dr. Parker if our Secretary gave you any reference to Dr. Moorhead, Dr. Heilman and Dr. Houlihan of Ida County. They were voted in as Life Members of Ida County. The secretary was supposed to take care of it.

Secretary Parker: They are Life Members already and are so carried on the roll.

Dr. Bernard: I want to ask if the names of J. H. Sams and C. H. Morse were sent to you. They were voted Life Members of the Wright County Medical Society several months ago.

President Burcham: In the Second Councilor District report there is the following provision: "The following physicians have been voted Life Membership by their county societies and are recommended to the House of Delegates for such honor: Dr. G. M. Lee, of Thompson; Dr. F. A. Stevens, of Belmond; Dr. J. H. Sams, of Clarion, and Dr. C. H. Morse, of Eagle Grove." The physicians you name have been made Life Members as a result of the acceptance of this report:

You have heard the list read by Dr. Parker, with the addition of the two names, Dr. Lambach and Dr. Taylor. All in favor of making these men Life Members signify by saying "aye;" contrary, the same sign. *It is carried.*

We will call for the report of the Constitution and By-Laws Committee.

#### REPORT OF COMMITTEE ON CONSTITUTION AND BY-LAWS

House of Delegates, Iowa State Medical Society:

Your Committee on Constitution and By-laws herewith submits its report in accordance with the provisions of the by-laws.

The following amendments to the constitution were presented for first reading at the 1935 session and accordingly come up for final reading and consideration at this session of the House of Delegates.

1. Article IV, Section 2. All of the first sentence, following the first two words "Life member" be omitted and in lieu thereof, enact the following: "shall be those members who have been in good standing for a period of thirty or more successive years prior to the time of application for life membership and who are recommended for life membership to the House of Delegates by a vote of their county medical society."

(Life membership is usually conferred as a real honor and distinction. Many members feel that qualification for life membership in our society is now so low and so many are admitted each year, that it does not confer real distinction upon those being granted life membership. Under the present ruling a physician may not have been a member for a number of years, but if his county votes him life membership and presents it to the House of Delegates, he may still be made a life member. The proposed amendment necessitates continuous and recent support of the medical society and will confer real distinction upon those being granted the privilege of life membership.)

2. Article V. Change the period in the last line, following the word "Constitution" to a comma, and add the following: "And (3) ex-presidents of the Society."

(At the present time, when a president has served his term, there is no provision to keep him in the official body of the society. His counsel, made valuable by his years of experience in official positions, is lost to the society. This amendment will give him a voice in the business proceedings of the society and will prove a real asset to the society.)

3. Article VIII, Section 3. Omit the words "but no delegate" from line 3, all of lines 4 and 5, and the word "Trustee" from line 6.

(Under the present set-up no delegate can be eligible to the office of president, vice president, secretary, or treasurer. Since delegates are usually the most representative and honored physicians in their own society, this deprives the State Society of the services of these valuable men in the offices mentioned. This amendment will make delegates eligible to any office in the State Society.)

4. Article VIII, Section 4. Omit in its entirety.

(This section was added at the time of the change to the president-elect system. It has served its purpose and should now be deleted from the constitution. The next amendment will make provision for the president-elect to take office.)

5. Article VIII, Section 2. Add: "The President-Elect shall enter upon the duties of the presidency on the last day of the annual session succeeding that in which he is elected."

These amendments were proposed by this committee in 1935 and your committee on Constitution and By-laws moves that they be adopted.

The committee agreed to propose the following changes in the by-laws for your consideration at this 1936 meeting of the House of Delegates:

1. Chapter XII, Section 8. Add a second paragraph, as follows: "When a physician who is delinquent for a year or more in a component society moves to another county in this state, he shall be regarded as any other non-member and shall have to make application for membership in the new county society."

(The By-laws makes provision for the procedure in case of a member in good standing moving to another county within the state but does not provide for the procedure in case a physician who has been a member but is delinquent under the same circumstances. This amendment will remedy that situation and will guide the county society secretaries who often make inquiry regarding this point.)

2. Chapter XII, Section 9. Add a sentence at the conclusion of the Section, as follows: "Otherwise, every physician should belong to the society in the county in which he resides."

(The first part of Section 9 implies that unless a physician lives near a county line, he must belong to the county society in the county in which he resides, but it does not say so directly. As a consequence many physicians belong to one county society but live in another. This is especially true in counties adjoining a large county. This tends to destroy the smaller county medical societies. This amendment will remedy this situation. If this amendment is passed and a physician living in one county wishes to belong to the society in some other county, he may, if he is first a member of his own county society, become a non-resident of the other society.)

Your Committee on Constitution and By-Laws recommends the adoption of these amendments to the by-laws.

Walter R. Brock, Chairman  
John H. Henkin  
W. A. Sternberg

Dr. Brock: Mr. Chairman and Gentlemen: We are all interested in the Constitution of our Society. I suppose, Mr. President, I should read this report in order to make it legal, should I not?

Dr. Brock read the report of the Committee on Constitution and By-Laws, found on page 41 of the Handbook, down to and including the motion for adoption of the amendments proposed in 1935.

President Burcham: You have heard the motion. Do you want to vote on this as a whole or by sections?

Dr. Brock: Mr. President, because of the dissension here in voting upon it as a whole, I will withdraw my motion, and we will proceed by each article.

President Burcham: Is that with the consent of the second?

With the consent of the second, the motion for the adoption of the report as a whole was withdrawn.

President Burcham: Dr. Parker will read the article as it is at present in the Constitution and

then he will read it as it is changed, and we will vote on them one at a time.

Secretary Parker read Article IV as it now stands and then with the amendment suggested by the Committee on Constitution and By-Laws.

Secretary Parker: I *move* the adoption of the amendment.

President Burcham: You have heard the motion which has been seconded, to adopt Article IV, Section 2, as amended. Is there any discussion?

Dr. Hanna: That limits life members to those who have been members of the Society for thirty or more successive years? Is that right?

President Burcham: Yes.

Dr. Hanna: The amendment prevents the election to Life Membership in this Society of any member who has not been continuously in good standing for thirty years, but who may be such an outstanding person as to deserve it.

Dr. Brock: Yes.

Dr. Van Metre: I have been a member for more than thirty years except for two years in the military service, in which time I was not a member of the Society. How does it affect my Life Membership some time in the future?

President Burcham: I think it would be a poor county society that would drop such a member during that period of time.

Dr. Evon Walker: It seems to me that the proposed amendment will prevent a man being elected to Life Membership under any circumstances, unless he has been in Iowa continuously for thirty years. This might work some injustice. I am not looking for it, am not expecting it and don't care for it, but I happen to have been born in Iowa, educated in Iowa, and practiced in Iowa the better part of more than thirty years. However, for a time I was out of Iowa. There are other men who really are worthy, who may have similar records. They are Iowans, graduated from the university here. I don't think that provisions should be so stringent that men who are worthy and outstanding will not be able to be elected.

Dr. Van Metre: It could be very easily remedied by an amendment to the effect that those who have been in military service or in other service may be eligible. My Society moved to keep up my membership for four years while I was a missionary. I don't know whether they kept it up or not. I, like the other gentlemen, am not looking for Life Membership, but I think that Dr. Brock's amendment could be changed to take care of such cases as I mentioned.

Dr. Bellinger: I don't know what the original instruction was in regard to this amendment to the Constitution, and I don't rise for the purpose of objecting to the advocacy of this amendment to the Constitution. However, this thought comes to me: I wonder if in requiring thirty years' activity on the part of a practitioner to make him eligible to be elected as a Life Member of this Society, we shouldn't as members of our county society use a



great deal of discretion in electing or nominating men for Life Membership.

As I look over this organization and see the gray hairs, I realize that the majority of us have been practicing thirty years; in fact, I myself have been practicing some time over thirty years. I wouldn't want a Life Membership in this organization because I feel that the State Society needs the experience of men who have been members for thirty years; needs their moral and professional influence.

If this amendment to the Constitution is passed without any restriction on the counties in electing their members as Life Members, it seems to me it would be dangerous, because they might advocate the election to Life Membership of too many members.

If the men who are recommended have been influential in their county societies and in the State Society, have become physically incapacitated and are not in active practice, then I feel we should pass this amendment. Men who have influence and money should not be exempt from the provision. There is just a question in my mind as to whether we should pass this amendment.

Dr. Brock: Mr. President, I might suggest that Dr. Bellinger's ideas are very good, but we must remember that we as a State Society can't tell our counties what they shall do. We have to put them on their honor, and we don't expect they are going to run any black sheep in as Life Members. As far as I am concerned, I feel that every county is entitled to decide who should be a Life Member; there is no doubt that they should be careful. The only thing we can do is suggest to them.

Dr. Henkin: Mr. Chairman, if a county recommends somebody for Life Membership, the State Society books are examined to see if that individual has paid his dues for thirty consecutive years, are they not?

Secretary Parker: Yes. Often a member writes in direct and makes application for Life Membership.

Dr. Henkin: What I mean is, you wouldn't accept the county's recommendation without examining your books to see if the doctor had paid dues every year for thirty years, would you?

Secretary Parker: The last part of that article says: ". . . and of such other worthy members as the Society may designate by unanimous vote."

Dr. Henkin: If the amendment should carry, the requisite of thirty years of continuous membership would exist for all members, would it not?

Secretary Parker: It would.

Dr. Henkin: So it seems to me it would become automatic. I think that a member who has paid his dues for thirty years has probably made suitable financial contribution to the Society, and with those that have not you have to strike some arbitrary point. I see no reason why thirty years should not be all right. Those who have not done so do not become Life Members. I cannot see that is an injustice to one if he never does become a Life Member. I don't see that that is a requirement that

any of us should ever become Life Members unless we happen to reach the goal of having paid dues thirty times. If one was in the military service and wanted to become a Life Member, he could pay the dues for these two years. I presume at this late date they could pay the back dues, could they not?

Secretary Parker: Yes.

Dr. Junger: Mr. President and Gentlemen: I don't believe that a scientific society should go so much on technicalities in granting Life Membership. We should depend on the honor of the man, the service he has rendered and the recommendation of his county society.

Supposing I am hard pressed financially. I wouldn't want you to throw me out because I didn't pay my dues for a year or two, or because I moved into Missouri or some other state. As the Scripture says, the spirit of the law maketh a life, while the letter of the law killeth. That is what you are talking about, the letter of the law. "If you move across the state line, you're out, even if you work harder than you did here."

I say that any man who has conducted himself honorably for thirty years or more and happens to move in Iowa ought to be an asset to us, and we can afford to carry him as a Life Member, if he is so situated that he can't pay. There won't be two per cent of the Life Members that wouldn't pay their dues right along.

I move that we quit the foolishness of being so technical and sticking to the letter of the law. Let's apply the spirit as a scientific body should apply it, to all these questions.

Dr. Morganthaler: Wouldn't it be possible to take out the word "consecutive" provided he meets all the rest of the requirements?

President Burcham: Dr. Brock, will you answer that question?

Dr. Brock: I suppose we could write this thing over until midnight tomorrow and we wouldn't agree upon it all around. I believe it is all right as it stands. I don't know that I want to make any change right now. We may do it next year, if we are alive and on the Committee. Personally, Mr. President, I prefer to present this just as it is. I don't see why we need to haggle upon technicalities.

The question was called for.

President Burcham: It has been moved and seconded that this change that has been read and discussed be adopted. All in favor say "aye;" contrary the same sign. I shall call for a rising vote. All those in favor of the adoption of this change to the Constitution will stand; all opposed. *The motion is lost.*

Will you read the second change?

Secretary Parker read Article V and its amendment.

Secretary Parker: I move its adoption.

President Burcham: Adoption of this amendment has been moved and seconded. Is there any discussion?

Dr. Putnam: As far as I can see, the only change

you have added is that the ex-presidents of the Society shall be members of the House of Delegates. It seems to me that when we elect a man as President of the Society we have conferred upon him all the honors he has deserved and he should go back into the ranks, keeping the control of the House of Delegates in the county societies where it belongs, where it originated. I feel that the change is not essential.

Dr. Loosbrock: The delegates are apportioned according to county strength, are they not?

President Burcham: Yes.

Dr. Loosbrock: I object to this article for the simple reason that as time goes on and you get a little piling up of ex-presidents in certain localities some of the smaller counties will get unequal representation. I feel that the active officers and delegates are sufficient to conduct the business of the Society, with all due respect to the ex-presidents. I feel they have had their honor and their local societies have the privilege of sending them back as delegates.

Dr. W. E. Baker: I would like to ask a question: If an ex-president is made a delegate to this body, would he have the right to vote or would his capacity be just advisory?

Dr. Brock: He would have a right to vote.

The question was called for.

President Burcham: The question is shall we adopt Article V of the Constitution, as amended? All in favor signify by saying "aye;" contrary the same sign. *It is lost.*

The Secretary will read the next amendment.

Secretary Parker read Article VIII, Section 3, and its amendment.

Secretary Parker: I *move* its adoption.

President Burcham: It has been moved and seconded that Article VIII, Section 3, as amended be adopted. Is there any discussion?

Dr. J. E. Brinkman: I rise to a point of order, because, if this is passed, it is going to affect our meeting. It says that the officers shall be elected on the morning of the last day of the Annual Session. If you look on your program, we are to elect the officers at one-thirty in the afternoon of the last day, so that would make it rather illegal.

Secretary Parker: We can't change the Constitution; we can change the meeting.

Dr. Brinkman: I am calling your attention to that. There is something else. I can hardly see why we should penalize a man simply because he doesn't happen to be present. It might be the will of the House of Delegates to elect some man who is very deserving, who is outstanding and intended to be here, but at the last minute something happened so that he couldn't come. According to this, we simply cannot elect him, and it might be that he never would be elected.

Then it says that no member shall be elected who has not been a member for the past two years. It seems to me that, when a man comes up for an office in the State Society, two years is a pretty small time

to check up on him. He might come and be a mighty tame sheep for two years, but he might have come from some place where his record wasn't quite so good. If we made it five years instead of two, it seems to me it would be better.

I would like to offer an amendment to this Section 3 of Article VIII, to read: "The officers of this Society shall be elected by the House of Delegates" (I don't see that it makes any particular reason as to time, forenoon or afternoon) "and shall make its report on the afternoon of the last day of the Annual Session." Then strike out, "if he is not here," because you know that doctors can't always keep appointments. Then say, "No person shall be elected to any office who has not been a member in good standing of this Society for the past five years" instead of two years.

President Burcham: He offered this as an amendment. Is there a second to the amendment?

The amendment was regularly seconded.

President Burcham: We will now vote on the amendment.

Dr. Fay: I rise to a point of order. I don't think you can amend the Constitution now. Amendments have to lay on the table for a year.

President Burcham: If this amendment to the amendment is lost, we can vote on the main amendment. If it is carried, it will have to lay over. Are you ready to vote on the amendment to the amendment? All in favor signify by saying "aye;" contrary. *It is lost.* Do you want to vote on the original question?

The question was called for.

President Burcham: All in favor of the adoption of the Constitution as amended signify by saying "aye;" contrary. We will have to have a rising vote. Will the "ayes" please stand? Will the "noes" please stand? *It is lost.*

Secretary Parker read the present Article VIII, Section 4, and that section as amended.

Secretary Parker: I *move* the adoption.

President Burcham: You have heard the motion. Is there any discussion?

*The question was called for, put to a vote and carried.*

Secretary Parker read Article VIII, Section 2, and its amendment.

Secretary Parker: I *move* the adoption of the amendment.

*The motion was put to a vote and carried.*

President Burcham: Now the changes in the By-Laws.

Secretary Parker read the proposed changes in the By-Laws.

President Burcham: This is the first reading of the changes in the By-Laws. It will be necessary for them to lay over one day and they will be taken up on Friday.

The next order of business is new business. Dr. Moore.

Dr. Fred Moore: Mr. Chairman, I want to bring to your attention this item of new business—the



matter of the interprofessional organization. As I indicated a while ago, the representatives of this Society, in accordance with the instructions of the House of Delegates, met with representatives of the other state professional societies and organized the Iowa Interprofessional Association, the constitution of which is in your Handbook on page 45.

Article III, Section 3 provides: "Each member organization shall be entitled to three delegates to be selected by it, in any manner satisfactory to the individual society or association."

Article IV, Section 4: "Each of the five coordinating societies may designate three representatives who shall be ex-officio members of this Association."

The first immediate step for our House of Delegates to take in furthering this interprofessional organization, is to provide for the appointment of representatives from this Society to the Iowa Interprofessional Association. Do you wish to take these up item by item?

President Burcham: Do you want that committee appointed?

Dr. Moore: It doesn't provide specifically for the appointment of a committee. The Legislative Committee has some hesitation in making specific recommendations for this particular thing, although we have discussed it with a number of the members. We felt that it might be well to leave this open for discussion and suggestions by the members of the House of Delegates. If you wish, we can make specific recommendations.

President Burcham: I think the Doctor wants some expression from the House as to whether the Legislative Committee shall be the committee to represent the State Society in this interprofessional group. I think last year the House of Delegates designated the Legislative Committee to act in that capacity. What he wants to know is whether you want to continue that, or whether you want some other committee. If you appoint a special committee, you can do it at Friday's meeting. If you appoint a standing committee, that will change the Constitution and By-Laws and it will have to lay over for a year. If you want the Legislative Committee to continue to represent us in this interprofessional group, all you have to do is to include it in the functions of the Legislative Committee at the present time. What is your pleasure?

Dr. Baker: I *move* that the Legislative Committee continue this work as it has done in the past year.

*The motion was put to a vote and carried.*

Dr. Watson: Inasmuch as the Constitution also calls for three ex-officio representatives, I *move* that those three ex-officio representatives be the President, the President-Elect and the Secretary of the State Society.

President Burcham: It has been moved and seconded that the President, the President-Elect and the Secretary act as ex-officio members. Are you ready for the question?

*The question was called for, put to a vote and carried.*

Dr. Moore: The next item to which I want to call your attention is with reference to dues, Article IX. Representatives of the several state societies obviously could not bind their several societies to financial support of this organization. They merely set forth in their Constitution that the annual dues of each member organization should be the nominal sum of \$10 for the first year. After the several state societies have adopted this and appointed the representatives, the latter can make more specific recommendations to their separate societies regarding expense.

Only the trustees can determine what our contribution may be. Therefore, I *move* that such financial support be given the interprofessional organization by the Iowa State Medical Society as the Trustees may decide upon.

President Burcham: That was made in the form of a motion. Is there a second?

Dr. Baker: I second the motion.

President Burcham: That refers to the Board of Trustees the matter of financing this. Are you ready for the question?

*The question was called for, put to a vote and carried.*

Dr. Moore: Then the next step is for this House of Delegates to issue such instructions, or make such suggestions as you may desire, to your representatives. I am sure the committee would be very grateful for any suggestions which you have to offer.

President Burcham: Is there any further new business?

Dr. Albright: Mr. President, I ask the consent of the House of Delegates to have a man who is not a member of the House of Delegates, Dr. Steindler, present a matter that has been passed upon by the proper committee of the State Society.

President Burcham: Permission has been asked to have the privilege of the floor extended to Dr. Steindler. Is there any objection? If there are no objections will you come forward, Dr. Steindler?

Dr. Steindler: Mr. President and Delegates of the Iowa State Medical Society: Some time ago the American College of Surgeons approached me with the idea of starting something to promote the treatment of fractures in the State of Iowa.

Prior to this there had been in existence a number of fracture committees throughout the several states, which at this time are in full operation. I was first asked to submit a list of names. This I refused to do, at least insofar as the names submitted would in any way indicate the total roster of men who were qualified to do fracture work. I felt that it was not within my province nor within my power to say who shall be capable of doing fracture work and who shall not.

In order to start it, I asked forty of the approximately 200 Iowa members of the College of Surgeons to meet with me quite informally and to de-

liberate on what could be done in order to make this a statewide movement.

I will say that the scope of the activities of this fracture committee is to hold fracture clinics, to give lectures, talks and demonstrations on the subject, to maintain and supervise adequate equipment for fracture treatment in hospitals, to maintain first aid stations, to cooperate with the Red Cross Society and similar activities, and to spread information on the subject to the public.

We met today at one o'clock, and I made it very clear to the gentlemen present that this group constitutes nothing but the nucleus of a fracture committee; that the completion of the roster of that fracture committee should be left to the Iowa State Medical Society.

This suggestion was adopted, in principle, and, after some discussion, I was asked to approach the Iowa State Medical Society, through its House of Delegates, with the following requests:

First, that the Iowa State Medical Society is requested, through its House of Delegates to select, in addition to the men already appointed, as many members as it deems advisable.

Second, that the Iowa State Medical Society, through its House of Delegates, is also requested to select a chairman from the number selected by it, so he may jointly, with the chairman chosen by the appointees of the College, call a constitutional meeting for further organization of the committee.

Third, that the Iowa State Medical Society hand in the names of these additional members to the College of Surgeons, with the understanding that they are already vouched for as to their qualifications by the Iowa State Medical Society.

Fourth, that the Iowa State Medical Society enlist and accept the cooperation of the College of Surgeons in an advisory capacity.

I would ask you to consider the driving motive of this procedure of transferring the control, the activities of a fracture committee, from the narrower frame of the College of Surgeons to the wider frame of the Iowa State Medical Society, because I believe that only with the wholehearted support of the entire profession would it be possible to make a success of this movement.

I thank you.

President Burcham: Does the House of Delegates want to take any action on this matter? Does the delegate from Johnson County want to make a motion?

Dr. D. W. Harman: What does this movement mean? There has been no explanation to the House of Delegates outside of the two brief items that we had. Do you want us to pass on something we don't know anything about?

President Burcham: I want you to use your own judgment. If it is not sufficiently clear I will ask for further explanation. There is no motion before the house. I thought probably somebody had a motion that they wanted to make to create a committee

to carry out the provisions of this talk of Dr. Steindler's.

Dr. Boice: Mr. President, I move that we receive and approve the report of Dr. Steindler, that the House of Delegates take such action as requested, and that a committee be appointed by the President of the Iowa State Medical Society to cooperate in the fracture work.

Dr. Fred Watts: I would like to ask a question. Is this committee that is being formed going to be used to disqualify a certain percentage of the physicians doing fracture work?

Dr. Steindler: Quite to the contrary. I felt that it was urgently necessary to expand the roster, the list of the men, beyond those who are members of the College of Surgeons, because I think it should contain all men who are qualified to do fracture work, whether they are members of the College or not. The thing won't work unless the State Medical Society and their county societies have something to say about the selection of members.

In regard to the operation of this, it would, of course, imply first that your President appoint a committee to report on those members of the State Medical Society and of the county societies who by their qualifications are eligible for the treatment of fractures. That is a matter that has to be investigated by the local county societies because no man can say at a distance whether a man is good or not.

Secondly, that the organization, when its membership is completed, select a state fracture committee, and that state fracture committee then select a subcommittee for each county or for each district, as they see fit, and then these subcommittees will be the ones that will do the actual work, that will put on the fracture clinics and get speakers and give demonstrations, and do everything possible to enhance the practice of fracture treatment.

Dr. Downing: It would seem to me that this matter should be referred to the proper committee before it is brought before the House of Delegates.

Dr. Harman: What is meant by the first aid stations? Does it mean that we want to concentrate the treatment of fractures in the hands of a few men, or what is the idea in back of it?

Dr. Steindler: The idea is primarily first aid stations on the highway.

Dr. Harman: Does the establishment of your first aid stations mean that the fracture treatment in the future will pass into the hands of a certain few men?

Dr. Steindler: This whole movement is for the express purpose of getting this work out of the hands of a few men and getting it into the hands of everyone who is qualified to treat fractures.

Dr. B. J. Dierker: If I understand this fully, this is to be a matter of teaching fracture work rather than selecting some one to do fracture work. I think we have to understand that out in the rural communities fracture work is done by almost every physician and quite extensive fracture work, as far as femurs and so on, are concerned. I imagine the vast bulk of the doctors in the state of Iowa are



doing fracture work, outside of the large centers. I ask for information as to whether this is a system of teaching by which you are hoping to make better fracture men out of the general practitioners, or whether it is a means to select those men who are capable of doing fracture work and keeping the work in their hands.

Dr. Steindler: It is almost entirely a matter of teaching fracture treatment.

Dr. Oliver J. Fay: These first aid stations, I think, are now put up by the American Red Cross, isn't that true, Dr. Steindler?

Dr. Steindler: Yes.

Dr. Fay: The American College of Surgeons has no idea of putting up first aid stations. It wants to establish medical control over the first aid stations that are now up and to work in conjunction with the American Red Cross. As the doctor here said, everybody in every community is doing fracture work, femurs, compound fractures, and so on. The intention is not to take the cases away from those men but, in the central clinics and elsewhere, to teach every man to do better fracture work. Is that not the case?

Dr. Steindler: In regard to first aid stations, I mentioned those because they are within the activities suggested, but I know some states, for instance, Rhode Island, which is very thickly populated, in which first aid stations are not accepted. I shall read again the six points which set out the principal activities. You will note that practically all of them are instructive:

To hold fracture clinics; to give lectures, talks, demonstrations and discussions on this subject; to maintain and supervise adequate treatment for fractures in hospitals; to maintain first aid stations; to cooperate with the Red Cross and similar activities, and to spread information on this subject to the public.

There isn't a word said about removing an individual fracture case from a remote center for treatment. That wouldn't elevate the treatment of fractures at all. Fractures are either treated adequately or not adequately. If they are not treated adequately, it is a matter of instruction for the physicians.

The American College of Surgeons, believing the fracture treatment was not adequate, instituted this movement which is, above all things, instructional.

Dr. Suchomel: It seems to me we already have a committee that could handle this matter, and I wish to amend the motion made by Dr. Boice by referring this matter to the Committee on Medical Education and Hospitals for its recommendation.

*The question was called for.*

President Burcham: The question has been called for. We will now vote on the amendment that this question of fracture treatment and educational program outlined by Dr. Steindler be referred to the Committee on Medical Education and Hospitals. All in favor signify by saying "aye"; contrary. *It is carried.*

Now the main question. Do you remember that resolution, that this committee be empowered to carry out the instructions as outlined by Dr. Steindler? On the main question, all in favor signify by saying "aye"; contrary "no."

Dr. Steindler: The main question was whether the Iowa State Medical Society is willing, by some procedure, to complete the list of men qualified to do fracture work throughout the state, of which we have merely a nucleus in the forty-one members who met today, or were to have met today at one o'clock. The whole thing centers about the question as to whether or not you will support the American College of Surgeons in the question of personnel. If the few men belonging to the College of Surgeons go out and talk among themselves, the movement will never be statewide, and it could never have state support. If it hasn't state support I don't think we can do anything. It failed in Nebraska for lack of state support until the Nebraska State Medical Society took it over, so to speak, and worked in cooperation with the American College of Surgeons. That is all I am asking. We don't want to have any monopoly on anything. On the contrary, we want to spread it out among all members of the State Medical Society. Whether a doctor is a member of the College of Surgeons or not makes no difference.

Dr. Fred Moore: I would like to ask Dr. Steindler a question, merely for clarification. He has used the expression, I believe, that he wishes to extend or complete the list of men who do fracture work. Is that right?

Dr. Steindler: Yes.

Dr. Moore: Do you mean that these men will do educational work in teaching how fractures should be handled, or will they do the actual handling of fractures?

Dr. Steindler: I mean the educational work, because it would be folly of me to believe that, if there is in a small town an accident, a fracture of the femur, the doctor has to send the case to the next town to have it set. It is the responsibility of the qualified men to see to it that there is uniform and competent treatment of fractures throughout the state of Iowa. That is educational work.

Dr. Wurtzer: May I ask Dr. Steindler who is to be the judge as to who is qualified?

Dr. Steindler: The Iowa State Medical Society, through its constituent county societies.

Dr. Wurtzer: May I mention what happened in our county society? At the last meeting of Cerro Gordo Society in Mason City, we voluntarily appointed a fracture committee. It was done for two reasons: One was for the better treatment of fractures in Cerro Gordo county, because all the members there agreed that each and every one of us was not equally well qualified to treat fractures. So we appointed a committee of three members to act as a fracture committee who would give each and every one of the members in Cerro Gordo Society free service in the treatment of fractures, so that we can get ex-

pert consultation and expert judgment on all fractures when we want it.

Dr. Bellinger: Gentlemen, I happen to be a member of this committee with Dr. Steindler. You are misinterpreting Dr. Steindler's meaning. This committee in its recommendations is not recommending to this House of Delegates that the American College's Committee on Fractures in the state of Iowa is advocating any policy of setting out selected men to do fracture work. This is simply the same as the Committee on the Study of Cancer in the American College of Surgeons and in the American Medical Association. The recommendation is for the Iowa State Medical Society to assume this responsibility and appoint this committee to make a study of fracture work. That committee is to pick out the surgeons and medical men in the state of Iowa who are qualified to help all of us in this state improve ourselves in the practice of fracture work.

Dr. Van Metre: I like very much the idea of the Cerro Gordo Medical Society in setting forth their own ideas in the matter. I don't see any reason why we have to have certain men at long range decide who is best suited to treat fractures. I think the county knows better than does the state society. I think there are so many organizations and so many things already going that we had better take care of what we have rather than set up something new.

Dr. James C. Donahue: It seems to me if this is purely an educational program, we are usurping the powers and privileges of one of the best departments connected with this State Medical Society. Has there been anything wrong with the Speakers Bureau in the last few years? They run a program on medicine, surgery, obstetrics, and gynecology. Why not include fracture work and give it to them? If it is purely educational, let them take care of it. I think the Speakers Bureau is qualified to pick the men to teach us how to take care of fractures.

Dr. Wurtzer: Mr. President, may I add one more suggestion. I would suggest to Dr. Steindler that he go on with the educational program, but the unit of our State Society is our county society. As I said before, Cerro Gordo Society within the last month has appointed such a committee, and I think Dr. Steindler could put this movement over in the county societies, who are better qualified to take care of their own fracture work than the State Society or any committee.

Dr. Steindler: Gentlemen, who am I to put it over to the county society? I have refused point-blank to the American College of Surgeons to have a hand in anything that looks like an exclusive selection of those men who can teach the treatment of fractures, because there is no possibility of my knowing anything about it. It is only possible through the county society. I think in your particular county society you have solved the problem. You certainly would know among a small circle of colleagues, those from whom you can learn something about fractures and those from whom you cannot. It is for that reason that I wanted the question referred to the

State Medical Society so it can, through the county society, make selections that will be above reproach. Long-range selections are no good. There are many men in this state who do excellent fracture work, and I don't know anything about them; I have no means of knowing. I am not in very close contact with the people who treat fractures, because I don't treat many fractures.

It happened to be my lot to have a hand in this organization. I made up my mind that unless we had the wholehearted support of the State Medical Society, there was no use of my wasting any time.

If you believe fracture treatment needs improvement, then you should take this seriously and be in favor of the State Society exercising its authority over the county society to select through them members who can demonstrate or teach or talk about fractures. If you don't think it needs improvement, there is no need of any organization. The Speakers Bureau certainly can't do it, because the Speakers Bureau is arranging for talks, and it could not possibly concentrate upon a subject that is so vital and has so many aspects as this.

The question was called for.

President Burcham: The question has been called for. All in favor signify by saying "aye;" contrary.

Dr. Downing: In view of the fact that this was referred by "aye" vote to your Committee on Medical Education and Hospitals, it would seem your original motion was lost. I *move* that we proceed to the next order of business.

President Burcham: I think that was an amendment to the motion. I think it is perfectly right that we should vote on the main question at this time. Are you ready for the question? The main question has been discussed here as to whether the Society wants to carry out the recommendation that has been explained here by Dr. Steindler this afternoon. If you vote in favor of the motion, that will put the work in the hands of the Committee on Medical Education and Hospitals. All in favor of the main question as amended signify by saying "aye;" contrary. *It is carried.*

We shall continue with new business.

Dr. Myers: Just briefly, the thought of the Committee on the Baldrige Memorial prize came from the fact that we were amazed at the immense amount of labor and material used in the preparation of these contests. You would be surprised at the amount of labor those papers reflected. There was stenographic work, photographic work, diagrams and extensive bibliographies. We were quite impressed with the fact that \$50 was not sufficient to encourage any worthy student to take up this contest. I think the idea of the prize would be defeated for the simple reason that any worthy, poor student who has ability and has ambition cannot go into this contest, for the simple reason that the prize is not sufficient to meet the expense.

Therefore, Mr. President, I *move* that the prize



of the Baldrige Memorial be increased to \$100 instead of \$50.

Dr. Fay: Mr. President, I want, if possible, to amend that so it will be retroactive. Can't that be made retroactive?

President Burcham: Dr. Myers, do you want to include that, with the consent of your second?

Dr. Myers: I will incorporate that in my motion.

President Burcham: The question now is that this award be increased from \$50 to \$100 and be made retroactive. All in favor of the question signify by saying "aye"; contrary the same. That will be referred to the Board of Trustees.

Is there any other new business?

Dr. F. M. Roberts: Mr. Chairman, it is my good fortune to come from the county in which the secretary of the state veterinary medical society resides. Dr. C. J. Scott of Knoxville is secretary of the veterinary society of the State of Iowa. He mentioned that it would be a very nice thing, highly appreciated by the veterinarians of the state, if this organization would appoint a committee to frame appropriate resolutions to Dr. Stange who recently died at Ames.

In that connection, I *move* that the Chairman appoint a committee of three, composed of individuals who were more or less in touch with the life and work of Dr. Stange to prepare the resolutions.

*The motion was put to a vote and carried.*

President Burcham: I will appoint on that committee Dr. Roberts, Dr. Moore of the Legislative Committee, and Dr. Watson of the Professional Relations Committee. Is there any other new business?

Immediately after adjournment I want the delegates of the different districts to get together and hold a caucus for the purpose of nominating a Committee on Nominations. You will hold your caucus and designate from each district the man you want to serve on the Nominating Committee. As soon as that election has taken place, I wish you would report to the Secretary of the Society.

The next order of business is to adjourn, but before I ask for a motion to adjourn, I want to make an explanation in regard to this one-thirty meeting in the afternoon on Friday. You will notice that the hand program does not call for a meeting at one-thirty in the afternoon. The programs that were sent out, as published in the IOWA STATE MEDICAL JOURNAL, did call for a meeting of the House of Delegates on Friday afternoon.

Dr. Parker, myself and some of the rest thought that, if we would hold the Friday session in the afternoon, which would be the day we would elect officers, we might hold the crowd, and you would all have an opportunity to go to the Friday morning session. There is some conflict in the Constitution and By-Laws as to the time when this meeting should be held.

In one section it says election of officers shall take place in the morning of the last day of the meeting, and in another place it says it shall be the first order of business on the last day. The thing I want you to do is to make a motion to adjourn, and I want you to

specify the time that you want to meet on Friday. If you want to meet Friday morning, I want you so to designate it. I think if you want to meet Friday morning you should meet at seven o'clock in the morning so we can get the meeting over and attend the scientific session. A motion to adjourn, with a definite time to meet again, is now in order, and it will be discussed at that time.

Dr. Goenne: I *move* we adjourn to meet again at eight o'clock a. m. Friday morning.

*The motion was put to a vote and carried.* The meeting adjourned at six-thirty o'clock to meet again at eight o'clock Friday morning.

#### Friday, May 1

The second session convened at eight o'clock, President Burcham presiding.

President Burcham: Will the House please come to order? It is necessary, because of the election, to have roll call this morning by Dr. Parker.

Secretary Parker called the roll. The following delegates and alternate delegates were seated:

#### Delegates:

Appanoose: James C. Donahue.  
 Black Hawk: J. E. Brinkman.  
 Bremer: L. C. Kern.  
 Buchanan: H. A. Householder.  
 Cedar: W. N. Moore.  
 Cerro Gordo: E. L. Wurtzer.  
 Clarke: C. R. Harken.  
 Dallas-Guthrie: E. L. Bower.  
 Decatur: G. P. Reed.  
 Emmet: J. B. Knipe.  
 Ida: C. L. Putnam.  
 Jasper: H. P. Engle.  
 Johnson: E. M. MacEwen, Geo. C. Albright.  
 Lee: B. J. Dierker.  
 Linn: J. K. von Lackum, T. F. Suchomel.  
 Lyon: Knutte Sporre.  
 Marion: F. M. Roberts.  
 Marshall: A. D. Woods.  
 Mills: D. W. Harman.  
 Monona: E. C. Junger.  
 Muscatine: L. C. Howe.  
 Polk: James A. Downing, Fred Moore.  
 Poweshiek: E. B. Williams.  
 Scott: W. C. Goenne.  
 Shelby: E. A. Moore.  
 Story: Bush Houston.  
 Van Buren: E. E. Sherman.  
 Warren: John F. Loosbrock.  
 Washington: W. L. Alcorn.  
 Webster: James H. Bruce.  
 Winneshiek: J. J. Daly.  
 Wright: R. D. Bernard.

#### Alternate Delegates:

Boone: R. S. Shane.  
 Butler: J. G. Evans.  
 Pottawattamie: G. V. Caughlan.  
 Scott: R. E. Peck.  
 Woodbury: John H. Henkin, C. P. McHugh.

## Officers

President.....	Thomas A. Burcham
President-Elect.....	Prince E. Sawyer
Secretary.....	Robert L. Parker
Treasurer.....	Harold J. McCoy
Councilors— 1st District.....	F. A. Hennessy
3rd District.....	F. P. Winkler
4th District.....	J. E. Reeder
6th District.....	C. W. Ellyson
7th District.....	A. W. Erskine
8th District.....	C. A. Boice
9th District.....	H. A. Spilman
11th District.....	M. C. Hennessy
Trustee.....	John I. Marker
Trustee.....	E. M. Myers
Trustee.....	O. J. Fay

Total: 35 delegates, 6 alternates, 15 officers.

Secretary Parker: Mr. President, there being a majority of delegates seated, I *move* that we proceed to the regular order of business.

President Burcham: The first order of business, after the roll call, is the reading of the minutes of the last meeting.

Secretary Parker: Mr. President, I will read in abstract the minutes of the last meeting. Secretary Parker read the minutes of the Wednesday afternoon session.

President Burcham: You have heard the reading of the minutes. Are there any corrections or additions to the minutes as read? If not, they will stand approved as read.

The next order of business is the report of the Nominating Committee, Dr. Moore.

Dr. E. A. Moore: Your Committee on Nominations begs leave to make the following report:

There were three names submitted for President-Elect: Edward M. Myers, Boone; W. A. Sternberg, Mt. Pleasant; Paul E. Gardner, New Hampton; First Vice President, Frank J. Rohner, Iowa City; Second Vice President, Douglas N. Gibson, Des Moines; Trustee, John I. Marker, Davenport. For Secretary, I beg leave to state that one vote was cast for Robert L. Parker of Des Moines, and it was unanimous. For Treasurer: Harold J. McCoy of Des Moines; Council: Fifth District, Earl B. Bush, Ames; Tenth District, James G. McCrae, Creston; Delegates to the A. M. A.: Thomas F. Thornton, Waterloo; Vernon L. Treynor, Council Bluffs; Alternates to the A. M. A.: R. H. Lott, Carroll; F. P. McNamara, Dubuque.

The Committee desires to recommend that the next meeting place for the Annual Session of the Iowa State Medical Society be Sioux City, the second week in May, providing that this date does not conflict with the meeting of the American Medical Association.

This report is respectfully submitted and signed by Dr. R. D. Bernard as Chairman and Dr. E. A. Moore as Secretary.

President Burcham: It is necessary to vote on the President-Elect by ballot. According to the Constitution and By-Laws, I will appoint Dr. Loos-

brock, Dr. McClure, Dr. Junger and Dr. Thornton as tellers. Are there any more names you would like to suggest from the floor of the House, for President-Elect?

Gentlemen, while you are marking your ballots and the tellers are counting them, I want to present Dr. Humiston of Illinois, the next President of the Illinois State Medical Society, and now a member of the Committee on Medical Education and Hospitals of the American Medical Association.

Dr. C. E. Humiston: I am very happy to be present at such a harmonious meeting as this has been, up to the present. I take it your presiding officer wanted to get me away so I wouldn't be voting the wrong ticket in this election. I noticed when they passed the ballots he made a bee line for me.

I am very happy to bring you the greetings of the Illinois State Medical Society. While we are neighbors geographically, we are more than that. We really are neighbors in the profession. It is well stated on the billboards here and there, that the practice of medicine is a journey, not a destination. I bring you the greetings of Illinois. You have our sympathy and our cooperation in all things which promote the welfare of the medical profession.

President Burcham: We will now have the report of the election.

Secretary Parker: The result of the ballot is: E. M. Myers, 40; W. A. Sternberg, 7; Paul E. Gardner, 9; a total of 56 votes.

Dr. Boice: May I *move* that the vote be made unanimous for Dr. E. M. Myers for President-Elect?

*The motion was put to a vote and carried*, and Dr. Myers was unanimously elected as President-Elect.

President Burcham: It is necessary for the Nominating Committee, as a result of this election, to retire and bring in a nominee for the office of Trustee in place of Dr. Myers.

The Nominating Committee retired.

President Burcham: We will have the report of the Nominating Committee.

Dr. E. A. Moore: Your Nominating Committee desires to present the name of Dr. John C. Parsons of Creston as a member of the Board of Trustees to succeed Dr. Myers.

I *move*, Mr. President, that the rules be suspended and the Secretary be instructed to cast the unanimous ballot of this House of Delegates for the remaining candidates as submitted by this Nominating Committee.

*The motion was put to a vote and carried.*

Secretary Parker: Mr. President, the Secretary very happily casts the unanimous vote of this House for himself and the rest of the officers.

President Burcham: I declare them elected.

The next order of business is committee reports. Is there any additional report of any of the committees? The next order of business is unfinished business.

Dr. Erskine: Mr. President, in the matter of the resolution referred to the Committee on Medical Education and Hospitals, the Committee wishes to



add to its report that it is the opinion of the Committee that some instruction should be provided for senior medical students on the activities, services and benefits of organized medicine.

President Burcham: The doctor wishes this added to his original report. Shall this addition to the original report be accepted?

Dr. Fay: I *move* that it be accepted.

President Burcham: It has been moved and seconded that this additional report be accepted. Is there any discussion? All in favor of the motion signify by saying "aye"; contrary. *It is carried.*

Are there any other committee reports?

Dr. F. A. Hennessy: On behalf of the Council, I would like to report to the House of Delegates that we feel the Committee on Professional Relations, which is a Council Committee, is unnecessary in view of the action that was taken in the House. The Legislative Committee has an ex-officio committee which will serve the purpose of the Committee on Professional Relations. We would like to submit to the House of Delegates that it is our wish to dispense with the Committee on Professional Relations as a committee of the Council.

Likewise with the Public Relations Committee; in most of their endeavors during the last few years they have been unable to find a field in which they can operate. Every time they have started some activity they have run into conflict with other committees functioning in what is supposed to be the public relations field.

We feel that, since the House of Delegates' committees are serving that purpose, there is no further need for the Council retaining the Public Relations Committee. If you so accept, we will be very glad to surrender the Public Relations Committee to the House of Delegates so that we can coordinate the activities of these committees. We will retain one committee, the Speakers Bureau.

President Burcham: You have heard the additional report of the Chairman of the Council. Do you want to accept that additional report? If you do, so move.

*Upon motion regularly made, the additional report of the Council was accepted.*

President Burcham: Are there any other committee reports or additions? If there are no other reports of committees at this time, we will vote on the changes in the By-Laws which were read Wednesday. They can be acted upon at this time. I will ask the Secretary to read them again, so you will know the questions on which you are voting.

Secretary Parker read Chapter XII, Section 8 of the By-Laws and its amendment.

Secretary Parker: I *move* the adoption of the amendment.

President Burcham: You have heard the motion. Is there any discussion?

*The question was called for, put to a vote and carried.*

Secretary Parker read the standing and proposed Chapter XII, Section 9, of the By-Laws.

Secretary Parker: I *move* the adoption of the amendment.

President Burcham: Is there any discussion?

Dr. Ellyson: I object to one word in this; it takes the teeth out of it. I think this amendment shouldn't pass with that word, even though it is held up for another reading. The word "shall" should be substituted for "should" in order to put teeth into that paragraph, which reads: "Otherwise, every physician should belong to the society in the county in which he resides."

The Councilors of the various districts have seen a great deal of trouble arising in small counties which border large counties or a county in which there are large cities. The comments made by the Committee on Constitution and By-Laws regarding the proposed amendment are absolutely true. To obviate or to do away with this situation, the word "shall" should enter into it. Otherwise these men will still continue to join Linn County from Benton County, Black Hawk from Benton County, Marshall from Grundy County, and those smaller counties will not function as they should.

Dr. J. G. Evans: I don't see any objection to the wording. I live nearer Waterloo than I do my own county seat. I live a mile and a half from Grundy County and four miles from Black Hawk County. I can go to meetings in Black Hawk better than Butler, but I am going to stay in my own county, I am sure. I can't see any objection to the wording. I don't see why it should be changed. The county society wherein the doctor is a member can decide whether he should leave or not.

Dr. Ellyson: We welcome others to the meetings of the Black Hawk County Medical Society. The Councilors and Secretaries are also glad to see the interest in medical meetings and to have members of different counties attending the meetings of other societies. However, we are primarily interested in seeing every physician be a member of his own county medical society first and foremost. He should take an active part in the affairs of his own county; then if he wishes to attend the meetings of other county societies, he will be heartily welcomed. I favor changing the word "should" to "shall" so that it will be mandatory for every doctor to belong to his own county medical society before he can participate in the activities of other societies.

Dr. Winkler: I *move* that the proposed amendment be amended to read "shall" instead of "should."

*The motion was put to a vote and carried.*

*Upon motion duly made that the proposed amendment as amended be adopted, the question was called for, and the motion carried.*

President Burcham: Is there any further unfinished business?

Dr. Brinkman: I *move* the adoption of the following amendment to Article VIII, Section 3.

"The officers of this Society shall be elected by the House of Delegates and shall make its report on the last day of the Annual Session and no person

shall be elected to any office who has not been a member in good standing for the past five years.”

Dr. Fred Moore: Will this amendment be considered by the Committee on Constitution and By-Laws and be voted on next year?

President Burcham: Yes, all amendments to the Constitution must lay over for a year.

Dr. Moore: Will this amendment be brought in next year by the Committee and then have to lay over a year before being voted on? I want this point to be cleared up because I consider it a very desirable motion. If it has to be referred to the Committee on Constitution and By-Laws it will not be brought up for action until next year. Can we not reconsider the vote on the proposed amendment to Article VIII, Section 3, recommended by the Committee on Constitution and By-Laws?

President Burcham: If you vote down Dr. Brinkman’s motion, then we can reconsider.

Dr. Brinkman: I will withdraw my motion.

Dr. Moore: I move that we reconsider the proposed amendment to Article VIII, Section 3, as proposed in the report of the Committee on Constitution and By-Laws.

Dr. Woodward: If we reconsider this now, can this be adopted next year?

President Burcham: If you reconsider this, you can accomplish what you are talking about next year.

Dr. Albright: If we pass Dr. Moore’s motion, it opens up Article VIII, Section 3 to discussion. If Dr. Brinkman makes his motion, we can vote on his proposed change next year.

Dr. Moore: I like Dr. Brinkman’s motion but it will be postponed until next year when we don’t know what the disposition of the motion will be. If we reconsider our vote on Article VIII, Section 3, Dr. Brinkman’s proposed changes can be brought in as a change to the amendment being reconsidered.

President Burcham: The motion before the house is to reconsider.

Dr. Albright: This article is dead. The way is clear for Dr. Brinkman’s motion.

*The question was called for and the motion to reconsider Article VIII, Section 3, was carried.*

Dr. Woodward: I move that Article VIII, Section 3 be amended as set out in the report of the Committee on Constitution and By-Laws, with the changes suggested by Dr. Brinkman.

Dr. Brinkman: I will read the changes which will be considered next year.

He read his proposed amendment to Article VIII, Section 3.

President Burcham: These changes will be referred to the Committee on Constitution and By-Laws. The Committee on Medical Economics recommended that the By-Laws be amended so that there will be five members on that Committee instead of three. That proposal has laid over one day. Will some one move the adoption of that amendment?

The motion was made and voted on. *It carried and the amendment was adopted.*

Dr. Albright: I should like to submit the follow-

ing amendment to Article IV, Section 2 of the Constitution: “Life Members—Any active member of this Society may be elected to life membership in the Society by vote of the House of Delegates, provided he has been recommended for such membership by his county society. They shall receive the transactions of the Society, and enjoy all the privileges of members, but shall be exempted from payment of the annual dues.”

President Burcham: This will be referred to the Committee on Constitution and By-Laws.

May I call your attention to the fact that there has been a change in the program as printed in the JOURNAL. The report of the House of Delegates will come at the conclusion of the morning session, rather than in the afternoon. I shall now call on the incoming President of the Society, who at this time will announce his choice of committee membership for your approval.

Dr. Sawyer read the following appointments of committee members for the coming year:

CONSTITUTION AND BY-LAWS	
W. R. Brock, Chairman.....	Sheldon
John H. Henkin.....	Sioux City
C. L. Putnam.....	Holstein
FINANCE	
Ernest C. McClure, Chairman.....	Bussey
Leslie L. Carr.....	Clermont
A. S. Bowers.....	Orient
MEDICAL ECONOMICS	
T. F. Thornton, Chairman.....	Waterloo
James C. Hill.....	Newton
James C. Donahue.....	Centerville
A. C. Moerke.....	Burlington
M. C. Hennessey.....	Council Bluffs
MEDICAL EDUCATION AND HOSPITALS	
A. W. Erskine, Chairman.....	Cedar Rapids
T. J. Irish.....	Forest City
B. J. Dierker.....	Fort Madison
MEDICO-LEGAL	
Frank A. Ely, Chairman.....	Des Moines
George C. Albright.....	Iowa City
F. Earl Bellinger.....	Council Bluffs
PUBLIC POLICY AND LEGISLATION	
Fred Moore, Chairman.....	Des Moines
R. D. Bernard.....	Clarion
S. W. Corbin.....	Corydon
BALDRIDGE MEMORIAL	
L. C. Kern, Chairman.....	Waverly
B. F. Wolverton.....	Cedar Rapids
A. D. Woods.....	State Center
CHILD HEALTH AND PROTECTION	
R. H. McBride, Chairman.....	Sioux City
E. D. Plass.....	Iowa City
H. E. Farnsworth.....	Storm Lake
Lee F. Hill.....	Des Moines
Howard A. Weis.....	Davenport
C. P. Phillips.....	Muscatine
Roland Stahr.....	Fort Dodge



## HISTORICAL

Walter L. Bierring, Chairman.....	Des Moines
Frank M. Fuller.....	Keokuk
T. B. Throckmorton.....	Des Moines
John T. McClintock.....	Iowa City
R. T. Leneghan.....	Clinton
William Jepson.....	Sioux City

## MEDICAL LIBRARY

Con R. Harken, Chairman.....	Osceola
Carl L. Gillies.....	Iowa City
Jeannette Dean-Throckmorton.....	Des Moines

## MILITARY AFFAIRS

Harold A. Spilman, Chairman.....	Ottumwa
Ira N. Crow.....	Fairfield
E. M. MacEwen.....	Iowa City

## SCIENTIFIC EXHIBITS

F. P. McNamara, Chairman.....	Dubuque
Frederick H. Lamb.....	Davenport
Allen C. Starry.....	Sioux City

## WOMAN'S AUXILIARY

A. A. Johnson, Chairman.....	Council Bluffs
Charles F. Snopek.....	Cresco
W. T. Peters.....	Burt
Roy A. Becker.....	Atlantic
F. M. Roberts.....	Knoxville

These appointments were approved by the House of Delegates.

President Burcham introduced the President-Elect, Dr. E. M. Myers, who expressed to the house his appreciation of the honor conferred upon him. Dr. Burcham then thanked the members of the House of Delegates for their cooperation and assured them of his continued interest and support in their activities.

The meeting adjourned at 9:30 a. m.

## THE SEASON'S FAD—SUNTAN

(Continued from page 365)

tions, at this time these conditions are but little understood and poorly defined; that offsetting these alleged benefits we must reckon with definitely proved harmful reactions and anticipate other delayed or accumulative effects detrimental to health. Can we then maintain the public trust and not sound a warning to the public, particularly to our patients, concerning this most recent popular fancy? The patient of low pigmentation or the one hypersensitive to the sun's rays, should certainly be warned, and others cautioned against extreme suntanning or too prolonged exposure at one time. Now is the vacation season, and if damage is to be prevented we must act without delay.

## 1936 GRADUATE FORTNIGHT OF THE NEW YORK ACADEMY OF MEDICINE

For the Annual Graduate Fortnight of the New York Academy of Medicine a subject of outstanding importance in the practice of medicine and surgery is selected and is presented from as many angles as possible. An attempt is made to offer to the profession a grasp of the advances in medicine so that the busy practitioner may be informed as to the last word on a given topic.

The Ninth Annual Graduate Fortnight will be held October 19 to 31 and will be devoted to a consideration of "Trauma; occupational diseases and hazards." Twenty-three important hospitals of the city will present coordinated afternoon clinics and clinical demonstrations. At the evening meetings prominent clinicians from various parts of the country who are recognized authorities in their special lines of work will discuss various aspects of the general subject. A comprehensive exhibit of books, pathologic and research material, apparatus for resuscitation and other first aid appliances will be assembled. Demonstrations will be held at regular intervals. Some of the features to be presented at the meetings, in the clinics and in the exhibit will be:

First aid in industry, in the home and on the highway.

Accidents and their management.

Resuscitation.

Shock and hemorrhage.

Hazards in athletics.

General principles of fracture treatment.

Fractures of the extremities.

Injuries of the head, spine, abdomen, chest and genito-urinary systems.

Hand injuries.

Burns—thermal, electrical, radiant and chemical.

Medico-legal aspects of trauma and disability.

War injuries and emergencies including—

Injuries caused by high explosives.

Medical aspects of chemical warfare.

Gas attack, gas defense.

Carbon monoxide poisoning.

Fatigue and noise in industry.

Harmful conditions in industry.

Occupational diseases.

Occupational hazards.

Industrial poisonings.

Relation of trauma to disease.

The medical profession is invited to attend. A complete program and registration blank may be secured by addressing Dr. Frederick P. Reynolds, The New York Academy of Medicine, 2 East 103d Street, New York City.

# WOMAN'S AUXILIARY NEWS

*Edited by the Press and Publicity Committee*

MRS. DEAN W. HARMAN, *Chairman*, Glenwood, Iowa

## GREETINGS FROM THE PRESIDENT

To the Members of the Woman's Auxiliary to the Iowa State Medical Society:

As the direct effect of the enthusiasm gained by the attendance at the annual meetings of the Iowa State Medical Society and the American Medical Association becomes dulled somewhat, can we not grasp and hold the echoes which come rolling back to us, and hearing them again and again, recreate that first enthusiasm for the benefit of the days and months of this year's work? When we consider that at least three-fourths of the states of the Union reported to roll call at our Fourteenth Annual Convention at Kansas City, it behooves Iowa, "state of all the land," to be "up and doing." Let us push our organizational work with determination, but with charitable consideration.

So many opportunities present themselves for unobtrusive but constructive presentation of material on subjects important to our profession, that we need to be on the alert to have facts, not fancies, at our immediate disposal. May each Auxiliary member strive to be well informed. With the cooperation of each county society now organized and of each one of our 302 members, we may continually expect growth and expansion. With growth and expansion we become of more value to the Iowa State Medical Society, which is the object of our organization. Without cooperation, we are ineffective and cannot fulfill our destiny.

It is with best wishes to each member of the Woman's Auxiliary to the Iowa State Medical Society that I am

Most sincerely,  
Lorena L. Boice, President.

## NEWS

Your chairman of the press and publicity committee requests that the president of each county auxiliary contribute at least one news item for the Auxiliary during the coming year. Information should be sent to the chairman at Glenwood, Iowa.

## EXHIBIT MATERIAL

Exhibit material suitable for the use of medical societies and other professional groups has been gathered from a number of different sources, and is available to state and county medical societies and other professional groups on request. Titles of the exhibits are:

Hospitals in the United States  
The Increasing Use of Hospitals  
Medical Education in the United States  
What The Public Is Thinking About Health  
The Doctor Prevents Disease  
Physiologic Effects of Heat, Cold, and Massage  
Useful Therapeutic Measures  
Work of the Council on Pharmacy and Chemistry  
Work of the A. M. A. Chemical Laboratory  
Food and Drug Legislation  
Patent Medicines and Quackery  
Objectionable Cosmetics  
Epidemic Encephalitis  
Nutrition  
Fractures  
Work of the American Medical Association  
Information Regarding Hygiene  
Vaccines and Serums  
Prevention of Asphyxial Deaths

There are many more in the list and these may be secured for transportation charges one way. Responsibility for installation must be borne by the local organization. Further description and information may be obtained from Thomas G. Hull, Director of Scientific Exhibits, American Medical Association, 535 North Dearborn Street, Chicago, Illinois.



## SOCIETY PROCEEDINGS

### Adair County Annual Meeting

Dr. L. H. Ahrens of Fontanelle was re-elected president of the Adair County Medical Society, at a meeting held in Greenfield, Tuesday, June 9. Dr. A. S. Bowers of Orient, was renamed secretary of the organization.

### Boone-Story Societies

Physicians and surgeons of Boone and Story counties held their second annual summer meeting at the Boone Country Club, Wednesday, June 24. Honored guests of the occasion were Dr. E. M. Myers of Boone, newly named president elect of the Iowa State Medical Society, and Dr. Earl B. Bush of Ames, new counselor of the Fifth District. Speakers on the program were Walter H. Nadler, M.D., associate professor of medicine, Northwestern University Medical School, and Waltman Walters, M.D., of The Mayo Clinic, Rochester, Minnesota.

### Buchanan County

The second quarterly meeting of the Buchanan County Medical Society was held at the Wapsipinicon Golf Club, the afternoon and evening of Thursday, June 11. The afternoon was spent in golfing, with Drs. H. O. Gardner and C. W. Ellyson of Waterloo, and J. I. Jones of Manchester, taking prizes. After a fried chicken dinner at the club house, the group was addressed by Lawrence P. Engel, M.D., assistant professor of surgery, University of Kansas School of Medicine, on Empyema of the Chest. T. F. Thornton, M.D., of Waterloo, and Harry E. Pfeiffer, M.D., of Cedar Rapids, opened the general discussion of the paper in which much interest was shown. Dean E. M. MacEwen of the State University of Iowa College of Medicine, was present and spoke briefly to the group.

N. L. Hersey, M.D., Secretary

### Floyd County

Frank H. Krusen, M.D., head of the section of physical medicine at The Mayo Clinic, Rochester, Minnesota, was guest speaker for the Floyd County Medical Society at the meeting held in Charles City, Tuesday, June 23. Dr. Krusen spoke on The Relationship of Physical Therapy to General Practice.

### Hardin County

The Hardin County Medical Society held its monthly meeting Tuesday, June 30, at the Stevens Hotel in Iowa Falls. The program followed a six-thirty dinner, with Samuel F. Haines, M.D., assistant professor of medicine, University of Minnesota, Graduate School of Medicine, addressing the group on The Glands of Internal Secretion.

W. E. Marsh, M.D., Secretary

### Jackson County

The summer meeting of the Jackson County Medical Society was held Thursday, June 18, in the Bellevue State Park where a noon dinner was served to the nearly fifty members and guests present. The following program was presented during the afternoon: Disease of the Biliary Tract and Jaundice, Howard R. Hartman, M.D., of Rochester, Minnesota; Common Skin Diseases, J. C. Kessler, M.D., of Iowa City; and Recent Advances in Diagnosis and Treatment, Horace M. Korn, M.D., also of Iowa City.

### Johnson County

The annual picnic of the Johnson County Medical Society was held Wednesday, July 1, at the home of Dr. and Mrs. George C. Albright. Hosts for the occasion were Drs. Albright, Boyd, E. Dulin, Hazard, Love, Pauline Moore, Muench, Parsons, Ruark, Speidel, Stephen Ware, Warner and Williams

W. M. Fowler, M.D., Secretary

### Marion County

A joint meeting of the Marion County Medical Society and the Marion County Veterinarian Association was held at Pleasantville Thursday, June 11. The following scientific program was presented after the six-thirty dinner: Clinical report of the Spaur case with detailed postmortem findings, E. C. McClure, M.D., of Bussey; Report of Scarlet Fever Case and Dick Tests made at Central College, Carl Aschenbrenner, M.D., of Pella; Results of Schick Tests made in Pella Schools with X-Ray Demonstrations of Some Reactors, John H. Peck, M.D., of Des Moines; Bovine Tuberculosis, Robert D. Wall, D.V.M., of Des Moines; and Selection of Obstetric Cases to be sent for relief care at the University Hospital, D. S. Burbank, M.D., of Pleasantville.

J. R. Wright, M.D., Secretary

### Tama County

Dr. H. W. Rathe of Waverly, was the guest speaker for the Tama County Medical Society at a meeting held in Tama, Friday, June 5. Dr. Rathe spoke on Coronary Artery Disease, and his lantern slides made the subject most interesting and instructive. Fifteen doctors out of a membership of twenty-four were present. Several of the doctors' wives attended as guests of the society at the banquet which preceded the meeting.

Albert A. Crabbe, M.D., Secretary

### Webster County

The Webster County Medical Society held a dinner meeting Friday, June 19, at the Warden Hotel in Fort Dodge, with William O'Brien, M.D., associate professor of pathology at the University of Minnesota, as the featured speaker. Dr. O'Brien's subject was Medicine Marches On.

### Austin Flint-Cedar Valley Medical Society

More than fifty physicians and guests attended the summer meeting of the Austin Flint-Cedar Valley Medical Society held in Waverly, Thursday, June 11. The following program was presented: Serotherapy in Infectious Diseases, Lee Forrest Hill, M.D., Des Moines; The Abortion Problem, Roy I. Theisen, M.D., of Dubuque; Modern Treatment of Diabetes, Including the Use of Protamine Insulin, E. J. Kepler, M.D., of Rochester; and Basic Principles in the Treatment of Some of the More Common Fractures, Howard L. Beye, M.D., of Iowa City.

Newly elected officers of the society include: Dr. W. J. McGrath of Elkader, president; Dr. M. B. Call of Greene, vice president; Dr. H. W. Rathe of Waverly, secretary; and Dr. A. P. Long of Waverly, treasurer.

### Des Moines Valley Medical Association

The sixty-third annual meeting of the Des Moines Valley Medical Association was held at the Ottumwa Country Club, Tuesday, June 16. A scientific program was presented in the afternoon by four visiting physicians, followed by a six-thirty banquet, and business session at which the following officers were elected to serve during the coming year; Dr. E. B. Hoeven of Ottumwa, president; Dr. Ira N. Crow of Fairfield, first vice president; Dr. F. C. Perkins of Hedrick, second vice president; and Dr. E. B. Howell of Ottumwa, secretary and treasurer.

### PERSONAL MENTION

Dr. Reuben Nomland, newly appointed professorial head of the recently organized department of dermatology and syphilology of the State University of Iowa, College of Medicine, arrived in Iowa City, July 1, to assume his new position. Dr. Nomland was graduated from Rush Medical College in 1925, spent three years at the Mayo Foundation in Rochester, specializing in dermatology and syphilology with Dr. Paul A. O'Leary, and for the past seven years has been connected with Rush Medical College in the capacity of instructor in dermatology and syphilology.

Dr. K. W. Woodhouse of Van Horne, has disposed of his practice to Dr. Dean A. Dutton of St. Paul, Minnesota, and will take care of his father's practice at Vinton during July and August, while Dr. and Mrs. G. R. Woodhouse enjoy a vacation in the Black Hills, Yellowstone National Park, Los Angeles, and Dallas, Texas. Upon their return, Dr. K. W. Woodhouse will leave for Philadelphia, where he will begin three years of special work in surgery at the University of Pennsylvania.

Dr. Tom B. Throckmorton of Des Moines, was elected grand master of the Iowa Masonic Grand Lodge at the Ninety-third Annual Communication, held in Davenport, June 10 and 11.

Dr. Ralph S. McLaughlin of Monroe, has turned his practice over to Dr. Nolton S. Lieberman of Minneapolis, Minnesota, and has moved to St. Louis, where he will spend two years in postgraduate work at Washington University School of Medicine.

Dr. Hyman M. Hurevitz, who for the past five years has been an instructor in the department of theory and practice at the State University of Iowa, College of Medicine, at Iowa City, is planning to enter private practice, and has located in Davenport.

Dr. C. F. Baumeister, Jr., of Avoca, has received notice of his appointment to a fellowship in the University Hospital of the College of Medicine of Louisville, Kentucky, where he will be engaged in operative surgery, teaching and research. Dr. Baumeister for the past two years has been associated with his father, Dr. C. F. Baumeister, Sr., in Avoca.

Dr. Maurice J. Rotkow, a recent graduate of the University of Georgia Medical School, has established offices in Des Moines at 1020 Equitable Building, where he will be associated with Dr. C. A. Sones. Dr. Rotkow completed his internship at the Iowa Methodist and Broadlawns Hospitals in Des Moines, and has just returned after taking postgraduate work in internal medicine at the Harvard Medical School, and the Peter Bent Brigham Hospital in Boston, Massachusetts.

Dr. William W. Holleman, formerly of Corsica, South Dakota, has arrived in Orange City, where he will be associated with Dr. John G. DeBey in the latter's hospital.

### MARRIAGES

Tuesday, June 3, Miss Violet E. Hansen of Oakland, California, and Dr. E. C. Magaret of Glenwood, were married at the home of the bride's aunt and uncle in Council Bluffs. Following a short wedding trip, the young couple will be at home at Glenwood, Iowa, where Dr. Magaret has been on the staff of the state institution for the past several months.

### DEATH NOTICES

Braden, Austin Lynn, of Wellman, aged sixty-six, died suddenly June 22, as the result of heart disease. He was graduated in 1903 from the State University of Iowa, College of Medicine, and at the time of his death was a member of the Washington County Medical Society.

Stirlen, William Wadsworth, of Muscatine, aged fifty-five, died June 9, following a prolonged illness. He was graduated in 1905 from Keokuk Medical College, College of Physicians and Surgeons, and had been a member of the Muscatine County Medical Society.



# HISTORY OF MEDICINE IN IOWA

*Edited by the Historical Committee*

DR. FRANK M. FULLER, Keokuk

DR. JOHN T. MCCLINTOCK, Iowa City

DR. PAUL W. VAN METRE, Rockwell City

DR. TOM B. THROCKMORTON, Des Moines

DR. WALTER L. BIERRING, Des Moines

DR. WILLIAM JEPSON, Sioux City

## History of Drake University College of Medicine\*

Ferdinand J. Smith, B.S., M.D., Milford, Iowa

(Continued from last month)

During the last three years of the Drake Medical College the requirements for entrance were raised to two years of college work in an accredited college of liberal arts, and the following subjects were demanded:

	Semester hours
Chemistry, general and qualitative.....	12
German or French.....	10
Physics* .....	6 or 10
Biology (Zoology or Botany, 1 year).....	6
Electives .....	22 or 26

\*Only six hours were required if one year's work had been done in the high school.

Dean Pearson was indefatigable in his efforts to bring every department up to the highest state of efficiency, and to obtain the cooperation of those working in them. He made changes wherever needed, transferred some faculty members to other departments where they could fit in to better advantage, and succeeded in welding together all of the groups into one harmonious whole, producing a very high grade of cooperation amongst the faculty, which brought about the very best of results. Quoting from Dr. David S. Fairchild: "In the last years of its existence under the administration of Dean Pearson the facilities, equipment and thoroughness of instruction reached a high degree of efficiency and bid fair to equal the best of the smaller colleges."

The graduates of the institution during all of these years were able practitioners and reflected much credit on their Alma Mater; some of them are now occupying positions of great responsibility as heads of departments in some of the best schools of the country. One is at the head of a department in the Mayo Clinic, at Rochester, Minnesota. Quite a number of our graduates as well as of our teachers attained high rank in the medical service of our country during the World War.

The story of the final abandonment by the University of its Medical Department for lack of funds, after the money so generously subscribed by the citizens of Des Moines a few years earlier had been exhausted, the writer will leave to be told in the vivid words of Dr. W. S. Mendenhall,

professor of physiology at Drake Medical College at the time of its abandonment and now professor of pharmacology at Boston University School of Medicine. Dr. Mendenhall's overgenerous praise for the writer's own efforts for the college, he allows to stand, apologetically, rather than damage by mutilation the stirring narrative of his erstwhile colleague.

### SIDE LIGHTS ON THE HISTORY OF DRAKE MEDICAL SCHOOL

By Walter L. Mendenhall, M.D.  
Boston University School of Medicine

"No history of Drake University Medical School would be complete unless a thorough insight is gained in those last few years of its existence. It may be truly said that the school was brought to a sudden end while in the midst of a rejuvenation that was both remarkable and splendid. This awakening of medical education at Drake dated no doubt from the beginning of Dr. David S. Fairchild's deanship. Dr. Fairchild must have felt the need for a more sound training in the fundamental sciences and in keeping with that idea he early called upon Dr. Ferdinand J. Smith to reorganize the first two years' work, to obtain as rapidly as possible full time instructors and properly to equip laboratories so that the fundamental sciences might better serve the students upon their entry into the so-called practical years. It was about this time that the Carnegie Foundation was investigating medical schools throughout the country. Dr. Smith, in assuming the task of reorganizing the first two years, was so successful that he was first made Junior Dean, and later Dean of Men, in which capacity the duties devolving upon him made his office virtually a deanship.

"Dr. Smith gathered around him many of the younger men. He gave them responsible positions and all knew that the manner in which they carried on in their responsibilities meant not only their own success or failure, but that of the school

as well. Through many years of teaching since then, the writer can truthfully say that he has never been connected with any institution in which the enthusiasm was so genuine as in that group which Dr. Smith welded into the first two years of the medical course. Dr. Smith, himself an indefatigable worker, always was willing to advise and assist the younger men. His richness of experience and education together with a kindly disposition made him most approachable not only to students, but to the younger men on the staff.

"In the fall of 1909 Dr. Fairchild's age and extensive consultation practice made him feel that he ought to resign the deanship to a younger man, one who had the youth and vigor to push this reorganization to a successful conclusion. Who was better suited for this important position than that prince of fellows, Dr. William W. Pearson? Here was a man who had the vigor to push the new school ahead. He not only took a keen interest in the reorganization of the clinical subjects, but also an equal interest in the preclinical subjects. Dr. Pearson investigated the preclinical subjects and knew what each department was offering. He was a tower of strength and had the admiration of every member of the faculty, an admiration and esteem that continued until the fateful day when the faculty voted to close the school rather than run anything but a first class college.

"The reports of the investigation of medical schools by the Carnegie Foundation in 1910 was a bombshell to medical education. And like a war time bomb which scattered death in its wake, so this report resulted in the death of many medical schools, but in those surviving it resulted in a powerful stimulus to meet the mythical standards proposed in that report. Fortunately, by reason of the foresight of Dr. Fairchild in giving Dr. Smith the reorganization of the science years in medicine, Drake did not suffer extinction at this time but received a stimulus to growth and improvement that spread like a contagion throughout the faculty.

Following the Carnegie report, the question of closing the Drake Medical School became a serious problem. It was practically decided to close the school when an unusual circumstance changed the aspect of the situation. It was felt that if a certain amount of money were raised a complete reorganization of the school could be effected; full time professors could receive a more commensurate remuneration, and the physical equipment could be extended and enlarged. But where should the money be obtained? Estimates were made for a five year period. The securing of the money seemed a hopeless task. It was at this time that an idea came to the resourceful Dr. Smith. Why not arouse the business men of Des Moines to

appreciate the meaning of the loss of the medical school? It was Dr. Smith's plan to arouse their interest by a student parade. This was the most critical time of the whole situation. Had Dr. Smith not acted, the school would have closed 'pronto.' But Dr. Smith did act in his irresistible manner. He organized the student parade. It invaded the downtown business district. Business men were attracted by it and became interested. In connection with the University, they organized a campaign to raise funds to save the medical school. The sum estimated to provide for an enlargement of the personnel and physical equipment for a period of five years was \$150,000. (This sum proved later to be far from adequate.) Daily lunches were held down-town and daily reports of the progress in the campaign were made. Enthusiasm was unbounded. The sum was quickly raised. Drake Medical School was saved. Too little credit has been given to Dr. Smith for this undertaking. There is where the credit is due, for he actually inaugurated the movement.

"Not until the Carnegie report was published did many college presidents realize that the work of a medical college was important enough to secure full time instructors. The stimulus to improve was not confined to the curriculum but extended to physical quarters as well. The new building on Center Street was greatly enlarged to accommodate the laboratory sciences and the fundamental sciences, and while the junior faculty was regretfully severing the associations of the campus, yet they joyfully entered these new quarters. The head of each department had planned his own laboratory. No one can quite describe the joy of anticipation and final realization by these men. It was the custom of these men always to improve themselves at every opportunity and the summer months found them visiting and studying teaching methods in the largest schools of the country. As younger men, heads of departments, life was indeed a zestful existence. And then came the Doom! The writer of these lines was studying research methods at the Western Reserve Medical College during the January following the meetings of the American Physiological Society in Cleveland. He received a confidential note from Dr. Smith in which was the information that Drake would close its medical school in June and that if he should happen to hear of another position it would be wise to accept it. Here was shown one of Dr. Smith's characteristics. He realized that all those young men who had given up their practice to devote their lives to teaching would be unceremoniously cut off from a means of livelihood. His note to the writer was evidence of his interest in the men serving with him.

"The effect of this announcement was like



plunging from sunshine to gloom. All hopes and aspirations for the moment seemed blunted, and speaking as one who lived through the experience I may say that never again were hopes or aspirations raised to such a height. These new departments were our own creations. We looked forward to proving that our plans were justified, but it was not to be. Final leave-takings were over. Young men were starting anew. Dr. Begg and Dr. Mendenhall turned to Harvard Medical where they had previously engaged in study; Dr. Begg in the department of anatomy with Drs. Minot and Lewis, Dr. Mendenhall in physiology with Drs. Cannon, Martin, Stiles, and Forbes. Later Dr. Lineback returned to the same institution in anatomy. Thus three of the former Drake medical faculty were now transplanted temporarily at Harvard. Dr. Glomset became a consulting pathologist.

"Dean Pearson, like the captain of a great ship, stood on the bridge and went down with the rest of the crew on that old medical ship 'Drake.' With the disappearance of that old vessel beneath the waves of progress there has always existed the feeling that the ship should not have sunk. Medically speaking, she was entirely seaworthy. The ship was top heavy with the weight of its faculty and students and alumni. All it needed was ballast to keep it upright and afloat. That ballast should have been provided. This is attested by the successful and splendid careers of the graduates of that honorable institution, Drake University School of Medicine."

#### FACULTY Year 1912-1913

HILL McCLELLAND BELL, A.M., LL.D.  
President of the University

WILLIAM WILSON PEARSON, M.D., DEAN  
Professor of Ophthalmology and Clinical Ophthalmology

FERDINAND JACOB ENDRES SMITH, B.S., M.D.  
Professor of Chemistry and Dean of Medical Students

JAMES TAGGART PRIESTLEY, M.D.  
Professor of Clinical Medicine

DAVID WILSON SMOUSE, M.D.  
Professor Emeritus of Gynecology and Clinical Gynecology

WALTER LAWRENCE BIERRING, M.D.  
Professor of Theory and Practice of Medicine and Clinical Medicine

JOHN CHESTER ROCKAFELLOW, M.D.  
Professor of Surgery and Clinical Surgery

ADDISON CAREY PAGE, M.D.  
Professor of Obstetrics

EDWARD RUDOLPH POSNER, M.D.  
Professor of Clinical Dermatology and Syphilis

ALEXANDER SWANSON BEGG, M.D.  
Professor of Histology and Embryology

WALTER LESLIE MENDENHALL, M.D.  
Professor of Physiology

ELI GRIMES, M.D.  
Professor of Clinical Medicine

GERSHOM HYDE HILL, A.M., M.D.  
Professor of Mental Diseases

FRANCIS ARGYLE ELY, M.D.  
Professor of Neurology and Clinical Neurology

NICHOLAS CORNELIUS SCHILTZ, M.D.  
Professor of Clinical Medicine

CHARLES MARTEL WERTZ, B.S., M.D.  
Professor of Otolaryngology, Rhinology and Laryngology

OLIVER JAMES FAY, B.S., M.D.  
Professor of Clinical Surgery

WILTON MCCARTHY, M.D.  
Professor of Clinical Surgery

ARTHUR STEINDLER, M.D.  
Professor of Orthopedic Surgery

DANIEL JOHNSON GLOMSET, B.S., M.D.  
Professor of Pathology and Bacteriology

HAROOTUNE AVEDIS MINASSIAN, A.M., M.D.  
Professor of Gynecology and Clinical Gynecology

ROBERT ALPHAEUS WESTON, M.D.  
Professor of Genito-Urinary Diseases and Clinical Genito-Urinary Diseases

PAUL EUGENE LINEBACK, A.M., M.D.  
Professor of Anatomy

WILBUR SCOTT CONKLING, Ph.G., M.D.  
Assistant Professor of Gynecology

THOMAS FRANCIS DUHIGG, M.D.  
Assistant Professor of Hygiene and Preventive Medicine

JOHN HYREN PECK, M.D.  
Assistant Professor of Theory and Practice of Medicine and Director of the University Dispensary

THEODORE ROLLY BALL, B.S.  
Assistant Professor of Chemistry

SAMUEL WARREN HOBBS, M.D.  
Assistant Professor of Anatomy

CHARLES NICHOLAS OLSON LEIR, M.D.  
Instructor in Electro-Therapeutics

JOSEPH ALBERT GOODRICH, B.S., M.D.  
Instructor in Obstetrics and Clinical Obstetrics

ROBERT LEMUEL PARKER, Ph.C., M.D.  
Instructor in Therapeutics

CHARLES EDWARD RUTH, M.D.  
Instructor in Surgery

LENNA LEOTA MEANES, M.D.  
Instructor in Clinical Obstetrics

GRANVILLE NIMROD RYAN, M.D.  
Instructor in Clinical Pediatrics

ALVA PORTER STONER, M.D.  
Instructor in Clinical Surgery

MATHEW LINCOLN TURNER, M.D.  
Instructor in Pediatrics

JEAN CLEMENT MENDENHALL, M.D.  
Instructor in Surgery and Clinical Surgery

DANIEL FRANCIS CROWLEY, M.D.  
Instructor in Surgery and Clinical Surgery

HOWARD DEAYER GRAY, M.D.  
Instructor in Obstetrics

JOHN CHARLES RYAN, M.D.  
Instructor in Surgical Anatomy and Operative Surgery

OTHA SETH THOMAS, Ph.B., LL.M.  
Instructor in Medical Jurisprudence

ELMER BRUCE MOUNTAIN, Ph.B., M.D.  
Instructor in Surgery

JOHN THOMAS STRAWN, B.S., M.D.  
Instructor in Medicine

LAWRENCE ELAM KELLEY, B.S., M.D.  
Instructor in Gynecology and Clinical Obstetrics

CHARLES MAPLES WHICHER, Ph.B., M.D.  
Instructor in Pediatrics

EDWIN BASON WINNETT, M.D.  
Instructor in Materia Medica

ELIZABETH MAE GITTINS, B.S.  
Instructor in Histology and Embryology

GUS BRUCE YOUNG, M.D.  
Instructor in Anatomy

CHARLES CLIFFORD WALKER, M.D.  
Clinical Assistant in Ophthalmology, Rhinology and Laryngology

JAMES ARTHUR DOWNING, M.D.  
Clinical Assistant in Ophthalmology, Rhinology and Laryngology

JAMES EVERETT KESSEL, M.D.  
Assistant in Medicine

EDWARD JOHN HARNAGEL, M.D.  
Assistant in Pathology and Surgical Pathology

JOHN GRAHAM DAVIS, M.D.  
Assistant in Gynecology

SYDNER DEAN MARTIN, M.D.  
Assistant in Pathology

CLARENCE WILLIAM MCCONIHAY, M.D.  
Assistant in Neurology

EDGAR EARWOOD, M.D.  
Assistant in Chemistry

RODNEY PIERCE FAGAN, M.D.  
Assistant in Chemistry

HENRY IRL McPHERRIN, M.D.  
Assistant in Histology and Embryology

ROY EVERETT PARRY, M.D.  
Assistant in Physiology

JOSEPH RODERICK WINNETT, M.D.  
Assistant in Anatomy

ELEANOR OVERHOLT  
Clerk of University Dispensary

JEAN CLEMENT MENDENHALL, M.D.  
Librarian

THE END.

# THE JOURNAL BOOK SHELF

## BOOKS RECEIVED

**ABORTION, SPONTANEOUS AND INDUCED, MEDICAL AND SOCIAL ASPECTS**—By Frederick J. Taussig, M.D., professor of clinical obstetrics and clinical gynecology, Washington University School of Medicine, St. Louis. C. V. Mosby Company, St. Louis, 1936. Price, \$7.50.

**BASAL METABOLISM IN HEALTH AND DISEASE**—By Eugene F. DuBois, M.D., medical director, Russell Sage Institute of Pathology. Third edition, thoroughly revised, illustrated with 98 engravings. Lea and Febiger, Philadelphia, 1936. Price, \$5.00.

**BEWILDERED PATIENT**—By Marian S. Newcomer, M.D. Hale, Cushman & Flint, Boston and New York, 1936. Price, \$1.75.

**DENTAL INFECTION AND SYSTEMIC DISEASE**—By Russell L. Haden, M.D., chief of the medical division, Cleveland Clinic, Cleveland. Second edition. Illustrated with 63 engravings. Lea and Febiger, Philadelphia, 1936. Price, \$2.50.

**EXAMINATION OF THE PATIENT AND SYMPTOMATIC DIAGNOSIS**—By John Watts Murray, M.D. With 274 illustrations. Second edition. C. V. Mosby Company, St. Louis, 1936. Price, \$10.00.

**AN INDEX OF DIFFERENTIAL DIAGNOSIS OF MAIN SYMPTOMS**—Edited by Herbert French, M.D., consulting physician to Guy's Hospital, London. Fifth edition, with 742 illustrations, 196 in color. William Wood and Company, Baltimore, 1936. Price, \$16.00.

**MEDICAL MYCOLOGY, FUNGOUS DISEASES OF MEN AND OTHER MAMMALS**—By Carroll William Dodge, Ph.D., mycologist, Missouri Botanical Garden. Illustrated. C. V. Mosby Company, St. Louis, 1936. Price, \$10.00.

**MEDICAL PAPERS**—Dedicated to Henry Asbury Christian, from his present and past associates and house officers at the Peter Bent Brigham Hospital, Boston, Massachusetts. The Waverly Press, Baltimore, 1936.

**PEDIATRIC NURSING**—By John Zahorsky, M.D., professor of pediatrics, St. Louis University School of Medicine. With 144 illustrations and seven color plates. C. V. Mosby Company, St. Louis, 1936. Price, \$3.00.

**PHYSIOLOGY OF LOVE**—By Professor Paolo Mantegazza. Eugenics Publishing Company, New York, 1936. Price, \$3.00.

**PSYCHOLOGY OF SEX**—A Manual for Students by Havelock Ellis. Emerson Books, Inc., New York, 1935. Price, \$3.00.

**SYNOPSIS OF CLINICAL LABORATORY METHODS**—By W. E. Bray, M.D., professor of clinical pathology, University of Virginia. Thirty-two text illustrations, eleven color plates. C. V. Mosby Company, St. Louis, 1936. Price, \$3.75.

**A TEXTBOOK OF SURGERY**—By American authors, edited by Frederick Christopher, M.D., associate professor of surgery at Northwestern University Medical School. With 1349 illustrations. W. B. Saunders Company, Philadelphia and London, 1936. Price, \$10.00.

## BOOK REVIEWS

### IMMUNOLOGY

By Noble Pierce Sherwood, M.D., professor of bacteriology, University of Kansas. Illustrated. C. V. Mosby Company, St. Louis, Missouri, 1935. Price, \$6.00.

Considerable mystery surrounds the phenomenon of immunity, and even to those of us who have continued our studies in bacteriology, the subject of the natural resistance of the body to disease is little understood. To this group of physicians, this text will make an especial appeal, although the book is obviously written for the medical student.

To present a background for the study, the author first discusses infection and infectious agents with detailed consideration of the host-parasite relationship. In subsequent chapters he discusses inflammation and tissue immunity, presenting in some detail the humoral and cellular theories of immunity, and other immunity reactions such as those involved in the production of the various antibodies and precipitins recognized in the body's defense mechanism. In this section dealing with toxins and antitoxins, the newer antibody preparations of therapeutic importance are fully presented and discussed. The closing chapters of the work deal with the work of the diagnostic laboratory in the field of immunology including the complement fixation test for syphilis.

The clear and concise form of presentation, the clarity of thought and expression, and the wealth of detail incorporated in this volume, assures its success in the field for which it is intended.

### YOU MUST EAT MEAT

By Max Ernest Jutte, M.D., formerly lecturer on stomach and intestinal diseases, New York Polyclinic Medical School. G. P. Putnam's Sons, New York, 1936. Price, \$2.00.

The dietetics of the past few years have stressed the ill effect of meat in the diet and emphasized the use of vegetables and fruits. The author of this small volume hopes to right the injustice done through such advice by presenting a sane and common sense viewpoint concerning the more generous use of meat in the normal diet. Inasmuch as his treatise is written primarily for the layman, he introduces the subject with a popular discussion of the anatomy and physiology of the digestive tract. He then advances his views concerning the faults and contradictions of a vegetable or fruit diet, following this discussion by an argument for the greater use of meats in diets, both in sickness and health. Before concluding the subject the author presents at some length a meat diet introduced a generation ago by an American physician, Dr. J. H. Salisbury, popularly known as "the Salisbury diet." So prominent in this diet was meat that a particularly delicious "Salisbury Steak" owed its introduction to the same person.

The closing chapter of the book summarizes the discussion and offers suggestions concerning the selection of a well balanced diet. The book is quite readable and patently timely.



### MEDICAL MYCOLOGY, FUNGOUS DISEASES OF MEN AND OTHER MAMMALS

By Carroll William Dodge, Ph.D., mycologist, Missouri Botanical Garden. Illustrated. C. V. Mosby Company, St. Louis, 1936. Price \$10.00.

So far as we are aware, no one has previously undertaken the comprehensive study of the fungous diseases of men and other mammals, or the compilation of a bibliography on this subject. That a need for a volume of this nature exists is revealed by a contemplation of the various mycotic diseases which, during the past decade, have attracted medical attention. While this text may be too encyclopedic and technical for consecutive reading, it will certainly prove a welcome addition to any reference library.

The author first considers the general morphology of fungi with reference to their physiology, their methods of cultivation and isolation and, finally, their classification. In later sections of the work, he discusses in detail the various organisms recognized as falling into the classifications of parasitic fungi. A complete bibliography follows each section, which we are advised brings the subject up to July 1, 1934; 142 illustrations are used to amplify the text.

### THE 1935 BOOK OF UROLOGY

Edited by John H. Cunningham, M.D., associate in genito-urinary surgery, Harvard University Postgraduate School of Medicine. The Year Book Publishers, Chicago, 1936. Price, \$2.25.

Outstanding among the year's achievements in this branch are the observations made concerning the influence of the adrenal glands on various systemic conditions; notably neurocirculatory asthenia, hyperthyroidism, peptic ulcer, epilepsy and other polyglandular disease. These observations have grossly expanded the ever increasing field of endocrinology. Preliminary work in renal sympathectomy in neuromuscular disturbances opens up an interesting field.

The subject of urinary calculi continues to receive major consideration in the literature, with notable contributions during the year on the effect of metabolism on renal stasis. Striking benefits have been reported from the use of the ketogenic diet in bacilluria. Tuberculosis and malignancy receive major attention although no particular outstanding contributions to the subject are reported. The transurethral resection for prostatic obstruction is still sufficiently new to command a prominent place in the interests of the medical world. Continued interest is manifest in the radiologic methods of kidney examination as well as the development of some of the newer methods of measuring kidney functions.

These and hundreds of other subjects are discussed in the 450 pages of this valuable summary of the year's advances in urology.

### SYNOPSIS OF CLINICAL LABORATORY METHODS

By W. E. Bray, M.D., professor of clinical pathology, University of Virginia. Thirty-two text illustrations, eleven color plates. C. V. Mosby Company, St. Louis, 1936. Price \$3.75.

During the past quarter of a century medical laboratory work has been considered of ever increasing importance in the practice of medicine. Chemistry and biologic research have added many new laboratory procedures during the past two or three years. The authors of this small volume make no claim to originality, except as they have collected the apparently useful laboratory procedures and arranged them in a most convenient form for practical use. They have brought the subject entirely up to date and included in this work all of the newer tests of proved merit. The author is to be complimented on his choice of tests and technic, and his ability to condense the voluminous literature into a small compass so that a complete guide to laboratory methods is furnished in a volume sufficiently compact to be carried readily in the interne's pocket or in the physician's medicine case. This volume is heartily endorsed for the purposes intended.

### PEDIATRIC NURSING

By John Zahorsky, M.D., professor of pediatrics, St. Louis University School of Medicine. With 144 illustrations and seven color plates. C. V. Mosby Company, St. Louis, 1936. Price, \$3.00.

As the science of pediatrics has been advanced and this specialty developed, additional training for nurses has seemed imperative. To meet this need the author has prepared this valuable work, stressing in Part I those phases of the science of pediatrics with which the nurse should be entirely familiar, and presenting in Part II those practical procedures by which the nurse may accomplish the desired results.

In the first section he takes up problems of growth and development, natural and artificial feeding, the importance of symptoms and syndromes, and various diseases of infancy and childhood classified by systems. In the second section he discusses the preparation of the infant's foods, methods of procedure as applied to the home and the hospital, with special chapters devoted to orthopedic nursing, and nursing in surgical conditions of children.

While the black and white illustrations in the book (144) are not all that could be desired, due possibly to the low gloss paper employed, this defect—if it be a defect—is largely counteracted by the seven unusually well executed colored plates, illustrating characteristic forms of infant stools and the appearance of the mouth and throat in the various contagious diseases. The volume appears well suited for the purpose intended.

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 Donovan, Michael J., Perry  
 Donovan, William H., Iowa City  
 Doolen, G. Wesley, Davenport  
 Doolittle, Russell C., Des Moines  
 Doornink, William, Orange City  
 Dorsey, Frank B., Keokuk  
 Dorsey, Frank B., Jr., Keokuk  
 Dorsey, Thomas J., Fort Dodge  
 Doss, William N., Garden Grove  
 Down, Howard L., Sioux City  
 Downing, James A., Des Moines  
 Downing, Leroy M., Cedar Rapids  
 Downing, Wendell L., Le Mars  
 Downing, William L., Moulton  
 Doyle, Joseph L., Sigourney  
 Driver, Richard W., Waterloo  
 Droz, Adolphus K., Washington  
 Dubrow, James L., Des Moines  
 Duffin, Charles W., Guttenberg (L.M.)  
 Duffy, J. James, Denison  
 Dulin, Evelyn E. H., Iowa City  
 Dulin, John W., Iowa City  
 Dulin, John A., Sigourney  
 Dulin, Tarana J. G., Sigourney  
 Duling, Raymond J., Sioux City  
 Dulmes, Abraham H., Klemme  
 Dunkel, George K., Fairfield  
 Dunkelberg, Elmer L., Waterloo  
 Dunn, Francis C., Cedar Rapids  
 Dunn, James, Davenport  
 Dun Van, Edgar K., Chelsea  
 Durrill, Everett L., Fort Madison  
 Durdieker, Stanley, Valley Junction  
 Dvorak, Joseph E., Sioux City  
 Dwyer, Robert E., Preston  
 Dye, Harold B., Glenwood  
 Dyson, James E., Des Moines  
 Earl, Warren Z., Sioux City  
 Eaton, Leslie F., Schaller  
 Ebersole, Frances F., Mt. Vernon  
 Edwards, Charles V., Council Bluffs  
 Edwards, James A., Okdale  
 Edwards, James F., Ames  
 Egermayer, George W., Elliott  
 Eggleston, Alfred A., Burlington  
 Egloff, William C., Mason City  
 Eiel, Hans E., Buffalo Center (L.M.)  
 Eiel, John O., Osage  
 Eiel, Merrill O., Osage  
 Elliott, Olin A., Des Moines  
 Elliott, William J., Dawson  
 Ellison, George M., Clinton  
 Ellyson, Charles W., Waterloo



- Elmer, Albert W., Davenport (L.M.)  
 Elmquist, Homer S., Cambridge  
 Elvidge, George, Perry  
 Ely, Francis A., Des Moines  
 Emerson, Edward L., Muscatine  
 Engle, Harry P., Newton  
 Ennis, Harry H., Baxter  
 Ensley, Bruce, Shell Rock  
 Entringer, Albert J., Dubuque  
 Entz, F. Harold, Waterloo  
 Epeneter, Franz J., Denver  
 Ericksen, Lester G., Dubuque  
 Erskine, Arthur W., Cedar Rapids  
 Eslick, Louis E., Rockwell City  
 Entz, F. Harold, Waterloo  
 Evans, Harold J., Davenport  
 Evans, John G., New Hartford (L.M.)  
 Evans, Robert A., Algona  
 Everall, Bruce B., Monona  
 Eversmeyer, Benjamin E., Muscatine  
 Everson, Gustave A., Plover  
 Faber, Luke A., Dubuque  
 Pagan, Rodney P., Des Moines  
 Fair, Adam B., Ottumwa  
 Fallows, Howard D., Mason City  
 Farlow, Charles T., Farnhamville  
 Farnham, Alfred J., Traer  
 Farnsworth, Harold E., Storm Lake  
 Farnum, Earl P., Sibley  
 Farrell, Vincent A., Mason City\*  
 Faust, John H., Newton  
 Fay, Oliver J., Des Moines  
 Fee, Knight E., Toledo  
 Feeney, Francis S., New Hampton\*  
 Fegers, Robert H., Keokuk  
 Feightner, Robert L., Fort Madison  
 Fellows, Joe G., Ames  
 Fellows, L. E., Newton  
 Felter, Allen G., Van Meter  
 Fenlon, Leslie K., Clinton  
 Fenton, Charles D., Bloomfield  
 Ficke, Emil O., Davenport  
 Field, George A., Des Moines  
 Fields, Homer, Lake City  
 Fields, Robert B., La Porte City  
 Files, Edward H., Cedar Rapids  
 Fillenwarth, Floyd H., Charles City  
 Finch, George H., Des Moines  
 Finch, Hiram C., Pulaski (L.M.)  
 Finder, Jerome G., Iowa City  
 Findley, Wm. J., Sac City  
 Fink, Anthony L., Carroll  
 Fisch, Roman J., Le Mars  
 Fisher, Wm. C., Williamson  
 Fitzpatrick, Dennis F., Iowa City  
 Flater, Norman C., Floyd  
 Fleck, Warren L., Milwaukee, Wis.  
 Fleischman, Abraham G., Des Moines  
 Fleming, Margaret A., Cherokee  
 Fletcher, Fred W., Sioux City  
 Flickinger, Roger R., Mason City  
 Flocks, Rubin H., Iowa City  
 Floersch, Eugene B., Council Bluffs  
 Floyd, Mark L., Iowa City  
 Fobes, Henry L., Auburn  
 Foley, Fred C., Newell  
 Foley, Walter E., Davenport  
 Foltz, Eloise G., Perry  
 Fordyce, Frank W., Des Moines  
 Forsythe, Manley, Fremont  
 Foster, Morgan J., Cedar Rapids  
 Foster, Samuel T., Adel  
 Foster, Warren H., Clinton  
 Foster, Wayne J., Cedar Rapids  
 Foulk, Frank E., Des Moines  
 Fout, Arthur S., Iowa City  
 Fowler, Willis M., Iowa City  
 Fox, Charles I., Pella  
 Fox, Ray A., Charles City  
 Franchere, Chetwynd M., Mason City  
 Frank, Louis J., Sioux City  
 Frank, Owen L., Maquoketa  
 Franklin, George W., Jefferson  
 Franco, Peter P., Ruthven  
 Frantz, Charles P., Burlington  
 Fraser, John H., Monticello  
 Fraser, Leonard E., Iowa Falls  
 Frazier, James W., Honey Creek  
 Frech, Raymond F., Newton  
 French, Charles H., Cedar Rapids (L.M.)  
 French, Royal F., Marshalltown  
 French, Valiant D., Carson  
 Fritchen, Arthur F., Decorah  
 Fritschel, Godfrey C., Dubuque  
 Fritz, Lafe H., Dubuque  
 Fry, Jay W., Creston  
 Fry, John L., Kalona  
 Fuerste, Frederick, Dubuque  
 Fuller, Frank M., Keokuk  
 Fuller, Quintus C., Milford  
 Fullerton, Oscar L., Redding  
 Fulliam, Edmund B., Jr., Muscatine  
 Furgerson, Lee B., Waterloo  
 Gaard, Rasmus R., Radcliffe  
 Gadd, Edson E., Des Moines  
 Galinsky, Della, Sioux City  
 Gallagher, John P., Oelwein  
 Galloway, Milton B., Webster City  
 Galman, James J., Hospers  
 Galvin, Robert J., Oelwein  
 Gambee, Eric J., Earling  
 Gamble, Robert A., Madrid  
 Gamet, Elmo E., Lamoni  
 Ganoe, James O., Ogden  
 Gardner, Charles W., Mt. Pleasant (L.M.)  
 Gardner, Harold O., Waterloo  
 Gardner, John R., Lisbon  
 Gardner, Paul E., New Hampton  
 Garling, Luvern C., Manchester  
 Garner, William A., Kiron  
 Garside, Arthur A., Davenport  
 Gaukel, Leo A., Onawa  
 Gaumer, James S., Fairfield  
 Gearhart, George W., Springville  
 Geeseka, Otto A., Mt. Pleasant (L.M.)  
 George, Joseph, Dows  
 Gerken, James F., Waterloo  
 Gernsey, Merrit N., Waverly  
 Gessner, Frederick W., Dysart  
 Getty, Everett B., Primghar  
 Gibbon, William H., Sioux City  
 Gibbs, George M., Winfield  
 Gibson, Charles G., Sioux City  
 Gibson, Douglas N., Des Moines  
 Gibson, Paul E., Des Moines  
 Gibson, Preston E., Davenport  
 Gifford, Albert K., Cedar Rapids  
 Gilfillan, Bruce L., Keokuk  
 Gilfillan, Clarence D. N., Fremont  
 Gilfillan, Earl E., Pulaski  
 Gilfillan, George W., Bloomfield  
 Gilfillan, Homer J., Cantril  
 Gillespie, Hamilton S., Sioux City  
 Gillett, Francis A., Oskaaloosa  
 Gillies, Carl L., Iowa City  
 Gillmor, Benjamin F., Red Oak  
 Gingles, Earl E., Onawa  
 Gingles, William W., Castana  
 Gittins, Thomas R., Sioux City  
 Gittler, Ludwig, Fairfield  
 Givens, H. Frank, West Bend  
 Glann, Arthur G., Colo  
 Glann, Roy C., Bronson  
 Glasscock, Thomas J., Hawarden  
 Glesne, Otto N., Fort Dodge  
 Glew, Percival B., Dallas Center  
 Gleysteen, Dirk J., Alton  
 Gloeckler, Bernard B., Mt. Pleasant  
 Glomset, Daniel J., Des Moines  
 Glynn, Charles E., Davenport  
 Goad, Robley R., Muscatine  
 Goenne, William C., Davenport  
 Golden, Thomas V., Clarinda  
 Goodenow, Sidney B., Colo  
 Goodman, Jonathon N., Osceola  
 Goodrich, Joseph A., Des Moines  
 Goggin, John G., Ossian  
 Gordon, Arnold M., Des Moines  
 Gottsch, Erwin J., Shenandoah  
 Gould, George R., Conrad  
 Gould, Isaac L., Kellogg  
 Gower, Walter E., Pocahontas  
 Graber, Frederick J., Stockport  
 Graber, H. E., Fairfield  
 Grady, E. M., Portsmouth  
 Graening, Charles H., Waverly  
 Graham, George W., Collins  
 Graham, James W., Sioux City  
 Gran, Albert G., Storm Lake  
 Grant, Cecil C., Cedar Falls  
 Grant, John G., Ames  
 Grau, Amandus H., Denison  
 Gray, Albert C., Keokuk  
 Gray, Henry A., Keokuk  
 Gray, Howard D., Des Moines  
 Gray, Ralph E., Eldora  
 Gray, Samuel T., Albia (L.M.)  
 Grayston, Jesse T., Marion  
 Green, William H., Bridgewater\*  
 Greenleaf, William S., Atlantic  
 Greenlee, Max R., Oskaaloosa  
 Greenman, Robert A., Hetch Hetchy, Calif.  
 Gregory, Raymond, Iowa City  
 Greteman, Theodore J., Missouri Valley  
 Griffin, Clark C., Jr., Vinton (L.M.)  
 Griffin, Frank L., Baldwin  
 Griffin, John M., Des Moines  
 Griffin, Sarah M., Manson  
 Griffis, Arthur A., Tipton  
 Grimm, Peter G., Spirit Lake  
 Groman, August, Odebolt (L.M.)  
 Grossman, Edward B., Glenwood  
 Grossman, Raymond S., Marshalltown  
 Grothaus, Dell L., Delta  
 Grove, Emil G., Boone  
 Grubb, Merrill W., Galva  
 Guldner, Ludwig F., Davenport  
 Gunn, Ross E., Boone  
 Gutch, Roy C., Chariton  
 Habenicht, Mae H., Des Moines  
 Hadsel, Henry S., Oxford, Ohio (L.M.)  
 Haacker, Lewis A., Hampton\*  
 Hageboeck, Alfons L., Davenport  
 Hagedorn, Harry H., Sioux City  
 Hagen, Edward F., Decorah  
 Hahn, James P., Sioux City  
 Haisch, Lily K., Dubuque  
 Haisch, Otto E., Dubuque  
 Hale, Albert E., Dougherty  
 Hall, Bonnybel A., Maynard  
 Hall, Clarence H., Cherokee  
 Hall, Cluley C., Maynard  
 Halloran, William H., Audubon  
 Hamilton, Benjamin C., Jefferson (L.M.)  
 Hamilton, Benjamin C., Jr., Jefferson  
 Hamilton, Cecil V., Garner  
 Hamilton, Harriett S., Council Bluffs  
 Hamilton, Henry H., Cedar Rapids  
 Hamilton, John, Cedar Rapids  
 Hamilton, William F., Marshalltown  
 Hammer, Marion R., Newton (L.M.)  
 Hamsa, William R., Iowa City  
 Hamstreet, Wilbur F., Tiptonka  
 Hanchett, McMicken, Council Bluffs  
 Hancock, John C., Dubuque  
 Hand, William C., Hartley  
 Hands, Sidney G., Davenport  
 Hankey, Daniel C., Council Bluffs  
 Hanna, John T., Burlington  
 Hansell, William, Ottumwa (L.M.)  
 Hansell, William W., Des Moines  
 Hansen, Fred A., Stanton  
 Hansen, Niels M., Des Moines  
 Hansen, Robert R., Marshalltown  
 Hanske, Edward A., Bellevue  
 Hanson, Frank H., Magnolia  
 Hanson, Laurence C., Jefferson  
 Hardin, John F., Bedford  
 Hardy, Albert V., Baltimore, Md.  
 Harken, Con R., Osceola  
 Harkness, Gordon F., Davenport  
 Harman, Clarence, Whiting  
 Harman, Dean W., Glenwood  
 Harnagel, Edward J., Des Moines  
 Harp, John F., Prairie City (L.M.)  
 Harpel, Kate S., Boone  
 Harper, Edna K. Sexsmith, Greenfield  
 Harper, James A., Greenfield  
 Harriman, Walter F., Sioux City  
 Harrington, Raymond J., Sioux City  
 Harris, Edwin E., Grinnell (L.M.)  
 Harris, Grove W., Marshalltown  
 Harris, Herbert H., Rockwell City  
 Harris, Ray R., Dubuque  
 Harrison, Glenn E., Mason City  
 Hart, William E., Odebolt  
 Hartje, Harry F., Atlantic  
 Hartley, Byron D., Mt. Pleasant

Hartley, George A., Battle Creek  
 Hartman, Frank T., Waterloo (L.M.)  
 Hartman, Howard J., Waterloo  
 Hasek, Victor H., Cedar Rapids  
 Hastings, John C., Elma  
 Hatch, Alice H., Des Moines  
 Haugen, Albert I., Ames  
 Haumeder, Eva M., New Hampton  
 Havlik, Aloysius J., Tama  
 Hawkins, Emmet L., Council Bluffs  
 Hawley, Olin B., Corning  
 Hay, William E., Avoca  
 Hayek, John M., Cedar Rapids  
 Hazard, Theodore L., Iowa City  
 Heady, Conda C. C., Bloomfield (L.M.)  
 Heald, Clarence L., Sigourney  
 Healy, Maurice A., Boone  
 Hearst, George E., Cedar Falls  
 Hecker, Frederick A., Ottumwa  
 Heeren, Ralph H., New Orleans, La.  
 Heetland, Louis H., Sibley  
 Heffernan, Chauncey E., Sioux City  
 Heilman, Ernest S., Ida Grove (L.M.)  
 Helgesen, Peter A., Lake Mills  
 Hendrickson, Alvin H., Sioux City  
 Henely, Edmund, Nora Springs  
 Henkin, John H., Sioux City  
 Henneger, William A., Dubuque  
 Hennessy, Felix A., Calmar  
 Hennessy, M. C., Council Bluffs  
 Henning, Garold G., Milford  
 Henrichs, Robert G., Manson  
 Henry, Clyde A., Farson  
 Henry, Hiram B., Des Moines  
 Hermence G. Earl, Marshalltown  
 Herrick, Thomas B., Manson  
 Herrick, Thomas G., Gilmore City  
 Herrmann, Christian H., Jr., Amana  
 Herrmann, Walter W., Iowa City  
 Herron, David A., Alta  
 Hersch, Thomas F., Cedar Rapids  
 Hersey, Nelson L., Independence  
 Hesbacher, Edwin N., Mt. Vernon  
 Hess, Howard R., Cedar Rapids  
 Hess, William C., Cresco  
 Heusinkveld, Henry J., Clinton  
 Hewitt, Leland G., Northwood  
 Hexom, John D., Decorah  
 Hibbe, Henry B., Dubuque  
 Hibbs, Fred V., Carroll  
 Hickenlooper, Carl B., Winterset  
 Hickman, Charles S., Centerville  
 Hicks, Wayland K., Sioux City  
 Hill, Chalmers A., Council Bluffs  
 Hill, Christine S. Erickson, Council Bluffs  
 Hill, James C., Newton  
 Hill, James W., Mt. Airy  
 Hill, Julia Ford, Worcester, Mass.  
 Hill, Lee F., Des Moines  
 Hills, Henry M., Lamoni  
 Hills, Robert A., Russell  
 Hinchliff, James, Minburn  
 Hinshaw, Sylvester E., Newton  
 Hobart, Francis W., Lake City  
 Hoegen, Joseph A., Wyoming  
 Hoeven, Edward B., Ottumwa  
 Hoffman, Alfred A., Waterloo  
 Hoffman, Paul M., Tipton  
 Hofman, William P., Davenport  
 Hofstetter, George, Clinton (L.M.)  
 Hogle, William M., Keokuk  
 Hohenschuh, Frank A., Clinton  
 Holbrook, Francis R., Des Moines  
 Hollis, Edward L., Marengo  
 Holm, Otto E., Salem  
 Holman, David O., Nora Springs  
 Holman, Henry D., Mason City  
 Holtey, Joseph W., Ossian  
 Hombach, Walter P., Council Bluffs  
 Hombach, William P., Council Bluffs  
 Hommel, Placido R. V., Elkader  
 Hooper, Lester E., Indianola  
 Hope, Frank G., Sioux City  
 Hornaday, William R., Des Moines  
 Horton, Vincent J., Calmar  
 Hospodarsky, Leonard J., Ridgeway  
 Hotz, Edward J., Strawberry Point  
 Hough, Frank S., Sibley

Houghton, Fred W., Council Bluffs  
 Houghton, Henry S., Peiping, China  
 Houlahan, Jay E., Mason City  
 Houlihan, Francis W., Ackley  
 Houlihan, Thomas J., Ida Grove (L.M.)  
 Householder, Harold A., Winthrop  
 Houser, Cass T., Cedar Rapids  
 Houston, Bush, Nevada  
 Hovendon, John H., Laurens  
 Howard, Fred H., Strawberry Point  
 Howard, Lloyd G., Council Bluffs  
 Howe, James M., Hillsboro  
 Howe, Lysle C., Muscatine  
 Howell, Chauncey W., Grinnell  
 Howell, Elias B., Ottumwa  
 Howland, Charles F., Des Moines  
 Hubbard, Frank A., Columbus Junction  
 Hudek, Joseph W., Garnaville  
 Hudson, Jessie B., Howard, R. I.  
 Huff, Virginia T., Iowa City  
 Hughes, Robert O., Ottumwa  
 Hull, Henry C., Washington (L.M.)  
 Hully, Henry D., Griswold  
 Hunt, Ernest A., Des Moines  
 Hunter, Kenneth P., Havelock  
 Huntley, Charles C., Avoca  
 Huntoon, Gardner A., Des Moines  
 Hurd, Charles A., Northwood  
 Hurevitz, Hyman M., Iowa City  
 Huston, Daniel F., Burlington  
 Huston, Herbert M., Ruthven  
 Huston, Ross, Des Moines  
 Huston, Samuel W., Mt. Pleasant  
 Hutchinson, Eleanor, Belle Plaine  
 Hyatt, Charles N., Albion (L.M.)  
 Hyatt, Charles N., Jr., Humeston  
 Hyndman, Olan R., Iowa City  
 Ingalls, Clair L., Iowa City  
 Ingham, Paul G., Mapleton  
 Ingraham, David R., Sewal  
 Irish, Thomas J., Forest City  
 Irwin, Charles E., Marshalltown  
 Irwin, Ralph L., Paulina  
 Isenberg, Bertice A., Lohrville  
 Ivins, Harry M., Cedar Rapids  
 Jackson, James M., Jefferson  
 Jacobsen, Robert A., Exira  
 Jaenicke, Kurt, Clinton  
 James, Audra D., Des Moines  
 James, David W., Kamrar  
 James, Lora D., Fairfield  
 James, Peter E., Elkhorn  
 James, Roger, Allison  
 Jameson, Robert E., Davenport  
 Janse, Phillip V., Algona  
 Jarvis, Fred J., Oskaloosa  
 Jarvis, Harry D., Chariton  
 Jay, Leon D., Waverly  
 Jeans, Philip C., Iowa City  
 Jeffries, Roy R., Waukon  
 Jenkins, George D., Burlington  
 Jenkinson, Ernest A., Sioux City (L.M.)  
 Jenkinson, Harry R., Iowa City  
 Jensen, Arnold L., Council Bluffs  
 Jensen, Arthur E., Humboldt  
 Jensen, LeRoy E., Audubon  
 Jepson, William, Sioux City (L.M.)  
 Jerdee, Ingebrecht C., Clermont  
 Jessup, Arthur E., Diagonal  
 Jinderlee, Joseph W., Cresco  
 Johann, Albert E., Des Moines  
 Johnson Aaron Q., Sioux City  
 Johnson, Aldis A., Council Bluffs  
 Johnson, Albert P., Sigourney (L.M.)  
 Johnson, Cecil C., Le Claire  
 Johnson, Chester H., Cherokee  
 Johnson, Clarence A., Moorehead  
 Johnson, F. Craig, Denver, Colo.  
 Johnson, Frank V., Maquoketa  
 Johnson, George M., Marshalltown  
 Johnson, G. Raymond, Ottumwa  
 Johnson, Harvey A., Atlantic  
 Johnson, J. A. William, Newton  
 Johnson, Jonathan, Alden  
 Johnson, Mark E., Corning  
 Johnson, William A., Alden  
 Johnston, C. Harlan, Des Moines  
 Johnston, Florence D., Cedar Rapids  
 Johnston, Harry L., Ames

Johnston, Helen, Des Moines  
 Johnston, Howard H., Hampton  
 Johnston, Kenneth L., Oskaloosa  
 Johnston, Thomas H., Spencer  
 Johnstone, Alexander A., Keokuk  
 Jones, Cecil C., Des Moines  
 Jones, Charles L., Gilmore City  
 Jones, Clare C., Spencer  
 Jones, Harry J., Cedar Rapids  
 Jones, Henry D., Schleswig  
 Jones, Jesse I., Manchester  
 Jones, Lewis H., Wall Lake  
 Jones, Mark C., Boone  
 Jones, Thomas S., Waukeee  
 Jongewaard, Albert J., Jefferson  
 Jordan, Carl F., Des Moines  
 Jordan, John W., Maquoketa  
 Jowett, John R., Clinton  
 Joynt, Albert J., Waterloo  
 Joynt, Martin J., Le Mars  
 Joynt, Michael F., Marcus  
 Judd, Addison L., Kanawha (L.M.)  
 Junger, Emil C., Soldier  
 Kaach, Harry F., Clinton  
 Kalar, Sara B., Ames  
 Kallman, Mervin E., Postville  
 Kase, Paul, Jr., Northwood  
 Kassmeyer, John C., Dubuque  
 Kast, Donald H., Des Moines  
 Katherman, Charles A., Sioux City  
 Kauffman, Edward C., Union  
 Kauffman, Ira D., State Center  
 Kauffman, William A., Marshalltown  
 Kaufman, Cloyd E., Burlington  
 Kaufman, Ernest L., Fort Atkinson  
 Keane, John L., Dyersville  
 Keating, Donald J., Ottumwa  
 Keech, Roy K., Cedar Rapids  
 Keefe, Patrick E., Sioux City  
 Keen, Burlin E., Des Moines  
 Keeney, George H., Mallard  
 Keith, Wilfred K., Creston  
 Kelley, Edmund J., Des Moines  
 Kelley, Lawrence E., Des Moines  
 Kellogg, Orson A., Dows  
 Kelly, Dennis H., Des Moines  
 Kelly, Harry D., Council Bluffs  
 Kelly, Joseph I., Burlington (L.M.)  
 Kempf, Terence A., Panama  
 Kendall, Guy M., Coggon  
 Kenefick, John N., Algona  
 Kennedy, Charles S., Logan  
 Kennedy, Edward P., Swaledale  
 Kennedy, Elizabeth S., Oelwein  
 Kennedy, William C., Somers  
 Kepler, Cornelius C., Pocahontas  
 Kepler, Earl C., Waverly  
 Kern, Lester C., Waverly  
 Kerr, H. Dabney, Iowa City  
 Kerr, Johnston H., Akron  
 Kerr, William, Randolph  
 Kerr, W. Hawley, Hamburg  
 Kershner, Frank O., Clinton  
 Kersten, Ernest M., Fort Dodge  
 Kerwick, Joseph M., New Hampton  
 Kessell, George, Cresco (L.M.)  
 Kessell, James E., Des Moines  
 Kessler, James C., Iowa City  
 Kessler, John B., Iowa City (L.M.)  
 Kestel, John L., Waterloo  
 Kettelkamp, Enoch G., Monona  
 Keyser, Ralph E., Marshalltown  
 Kieck, Ernest G., Cedar Rapids  
 Kiesling, Harry F., Lehigh  
 Kilgore, Benjamin F., Des Moines  
 Killeen, Mary A., Dubuque  
 Kimball, John E., West Liberty  
 King, David H., Batavia  
 King, Dean H., Spencer  
 King, Harold N., Washington, D. C.  
 King, Oran W., Des Moines  
 King, Ross C., Clinton  
 Kirch, Walter A., Des Moines  
 Kirkegaard, Smith C., Ringsted  
 Kitson, Walter W., Atlantic  
 Klein, John L., Muscatine (L.M.)  
 Kleinberg, Henry E., Des Moines  
 Kline, Samuel, Sioux City  
 Kluever, Herman C., Fort Dodge



- Knight, Benjamin L., Cedar Rapids  
 Knight, Russell A., Rockford  
 Knipe, James B., Armstrong  
 Knipfer, Robert L., Jesup  
 Knott, Peirce D., Sioux City  
 Knott, Robert C., Sioux City  
 Knowles, Fred L., Fort Dodge  
 Knox, James M., Cedar Rapids  
 Knudsen, Hubert K., Clinton  
 Kober, Augustus F., Charles City  
 Koch, Fred E., Burlington  
 Koch, George W., Sioux City  
 Koeneman, Eugene O., Eldora  
 Koob, William R., Brayton  
 Koontz, Carl J., West Burlington  
 Koontz, Lyle W., Vinton  
 Korfmacher, Edwin S., Grinnell  
 Kornder, Louis H., Davenport  
 Korn, Horace M., Iowa City  
 Kottke, Elmer E., Des Moines  
 Koziol, Edward S., Danbury  
 Krause, Charles S., Cedar Rapids  
 Krejsa, Oldrich, Cedar Rapids  
 Krepelka, George E., Stacyville  
 Kreul, Dwight G., Davenport  
 Kriebs, Frank J., Elkport (L.M.)  
 Kriechbaum, Horace T., Davenport  
 Kriechbaum, Walter P., Burlington  
 Kristgen, Joe M., Sioux City  
 Kruse, Henry H. W., Rockford  
 Kubela, Louis F., Chelsea  
 Kuhl, Augustus B., Davenport  
 Kuhl, Augustus B., Jr., Davenport  
 Kuhn, Leo C., Decorah  
 Kulp, Ray, Davenport  
 Kunath, Carl A., Iowa City  
 Kyle, William S., Washington  
 Labagh, Nicholas W., Mystic  
 Lacey, Thomas B., Jr., Glenwood  
 La Dage, Leo H., Bettendorf  
 Ladd, Fred G., Cedar Rapids  
 La Force, Edward F., Burlington  
 Laidley, Wallace G., Oden  
 Laird, John W., Mt. Pleasant  
 Lall, Shiam, Des Moines  
 Lamb, Frederick H., Davenport  
 Lamb, Harry H., Davenport  
 Lamb, Leslie, Lorimor  
 Lambach, Frederick, Davenport (L.M.)  
 Lambert, Avery E., Iowa City  
 Lampe, Elmer L., Bellevue  
 Lande, Jacob N., Sioux City  
 Landes, Frank H., Mt. Airy  
 Langan, Joseph C., Clinton  
 Langford, William R., Epworth  
 Langworthy, Henry G., Dubuque  
 Lapsley, Robert M., Keokuk  
 Larimer, Robert N., Sioux City  
 Larsen, Elmer A., Centerville  
 Larsen, Harold T., Fort Dodge  
 Larsen, William W., Le Mars  
 Larson, Lester E., Decorah  
 Larson, Marvin O., Alton  
 Lashbrook, Elam E., Estherville  
 Launder, Frank T., Garwin  
 Launder, Lloyd H., Marshalltown  
 Lazere, Albert H., Sioux City  
 Leader, Pauline M., Clarinda  
 Leahy, Paul E., Sioux City  
 Lease, Nimrod J., Crawfordsville (L.M.)  
 Lee, Frank W., Osage  
 Lee, Gisle M., Thompson (L.M.)  
 Lee, Harry P., Iowa City  
 Leech, Louis J., West Branch (L.M.)  
 Leehey, Florence P., Oelwein  
 Leehey, Paul J., Independence  
 Leffert, Frank B., Centerville  
 Lehman, Emory W., Des Moines  
 Leighton, Isaac W., Iowa City  
 Leighton, Lewis L., Fort Dodge  
 Leik, Don W., Dubuque  
 Leinbach, Samuel P., Belmond  
 Leinfelder, Placidus J., Iowa City  
 Leir, Charles N. O., Des Moines (L.M.)  
 Lekwa, Alfred H., Story City  
 Lenaghan, Robert T., Clinton  
 Lendgren, Carl V., Earlham  
 Lenzmeier, Albert J., Davenport  
 Leserman, Lester K., Rolfe  
 Lessenger, Ernest J., New London  
 Lessenger, William S., Mt. Pleasant (L.M.)  
 Levin, Harry M., Sioux City  
 Lewis, William B., Webster City  
 Lezotte, George D., Muscatine (L.M.)  
 Lichter, Theodore W., Edgewood  
 Lierle, Dean M., Iowa City  
 Liken, John A., Villisca  
 Lincoln, Simon E., Des Moines  
 Lindeman, Erich, Boston, Mass.  
 Lindsay, Vernard T., Glidden  
 Link, Martha A. M., Dubuque  
 Linn, Ellis G., Des Moines  
 Liska, Edward J., Ute  
 Little, Luther W., Atkins  
 Lloyd, John M., Washington  
 Lockhart, Harold A., Cedar Rapids  
 Loeck, John F., Aurora  
 Loes, Anthony M., Dubuque  
 Lohman, Fred H., Waterloo  
 Lohmann, Carl J., Burlington  
 Lohr, Oscar C., Churidan  
 Lohr, Phillips E., Churidan  
 Loizeaux, Charles E., Dubuque  
 Lomas, Willis A., Villisca  
 Long, Arthur P., Waverly  
 Long, Draper L., Mason City  
 Long, Walter K., Hampton\*  
 Long, William E., Mason City  
 Longworth, Wallace H., Boone  
 Loosbrock, John F., Lacona  
 Loose, David N., Maquoketa (L.M.)  
 Lorfeld, Gerhard W., Davenport  
 Losh, Clifford W., Des Moines  
 Lott, Robert H., Carroll  
 Lovejoy, E. Parish, Des Moines  
 Lovelady, Ralph, Sidney  
 Lovell, Harold W., Iowa City  
 Lovett, Charles E., Lineville  
 Loving, Luther W., Estherville  
 Lowder, William, Maquoketa  
 Lowry, James D., Fort Dodge  
 Luehrmann, Bernard, Dyersville  
 Luginbuhl, Christian B., Des Moines  
 Luke, Edward, Coin  
 Lundvick, Arthur W., Gowrie  
 Lutton, John D., Sioux City  
 Lynch, Robert J., Des Moines  
 Lynn, Arthur R., Marshalltown  
 Lyon, Morton, De Witt  
 Lytle, Carl C., Dubuque  
 MacEwen, Ewen M., Iowa City  
 MacLaughlin, Lucius E., Cedar Rapids  
 MacLeod, Hugh G., Greene  
 MacNaughton, Luther D., Eagle Grove  
 Macrae, James G., Creston  
 McAllister, James, Odebolt  
 McAlvin, James G., Waterloo  
 McBride, James T., Des Moines  
 McBride, Robert H., Sioux City  
 McBurney, George F., Belmond  
 McCall, John H., Allerton  
 McCarl, J. Jay, Sac City  
 McCarthy, Frank D., Sioux City  
 McCartney, William H., Des Moines  
 McCauliff, Guy T., Webster City  
 McClean, Earl D., Des Moines  
 McClintock, John T., Iowa City (L.M.)  
 McClure, Ernest C., Bussey  
 McClure, Gail A., Lawrence, Kan.  
 McColm, Charles W., New Market  
 McConkie, Willis L., Carroll  
 McConnaughey, James T., Mt. Pleasant  
 McCoy, Harold J., Des Moines  
 McCrary, Warren E., Lake City  
 McCrea, Eppie S., Eddyville  
 McCreedy, Murry L., Brighton  
 McCreery, John W., Whittemore  
 McCreight, George, Des Moines  
 McCuiston, Harry M., Sioux City  
 McCullough, Gilbert F., Davenport  
 McCutchan, Guy R., Council Bluffs  
 McDannell, John, Nashua  
 McDonald, James E., Mason City  
 McDowall, Gilbert T., Gladbrook  
 McDowell, William O., Grundy Center  
 McElderry, Donald, Ottumwa  
 McEwen, Earle, Mason City  
 McFarland, Guy E., Ames  
 McFarland, Guy E., Jr., Ames  
 McFarland, John, Centerville  
 McFarland, Julian E., Leon  
 McGowan, James P., Harlan  
 McGrane, Merle J., New Hampton  
 McGrath, William J., Elkader  
 McGready, Joseph H., Independence (L.M.)  
 McGuire, Clarence A., Dubuque  
 McGuire, Roy A., Fairfield  
 McHugh, Charles P., Sioux City  
 McKean, Alexander C., Ladora  
 McKee, Thomas L., Keokuk  
 McKirahan, Josiah R., Wayland  
 McKitterick, John C., Burlington  
 McLaughlin, Alphonso J., Sioux City  
 McLaughlin, Charles W., Washington  
 McLaughlin, Ralph S., Monroe  
 McMahon, George T., Wauke  
 McMahon, Thomas, Garner  
 McManus, Joseph P., Graettinger  
 McManus, Thomas U., Waterloo (L.M.)  
 McMeans, Thomas W., Davenport  
 McMillan, Edwin C., Hudson  
 McNamara, Frank P., Dubuque  
 McNamee, Jesse H., Des Moines  
 McNeill, Benjamin F., Clutier  
 McPherrin, Henry L., Des Moines  
 McQuillen, Charles W., Charles City  
 McQuiston, James S., Cedar Rapids  
 McTaggart, William B., Arcadia  
 McVay, Melvin J., Lake City  
 Mackin, M. Charles, Mt. Pleasant (L.M.)  
 Madsen, Charles C., Jr., Emerson  
 Magarian, Sennacherib M., Des Moines  
 Magee, Emory E., Waterloo  
 Magoun, Charles E., Sioux City  
 Mahin, Francis M., Ainsworth  
 Maiden, Sydney D., Council Bluffs  
 Malamud, William, Iowa City  
 Malliard, Robert E., Storm Lake  
 Maloney, Arthur P., Fonda  
 Maloy, Wayland H., Shenandoah  
 Mangun, Clarke W., Springfield, Mo.  
 Mansfield, Jonathan M., Clinton  
 Mantle, William B., Albion  
 Mantz, Russell L., Cedar Rapids  
 Maplethorpe, Charles W., Toledo  
 Marble, Edwin J., Marshalltown  
 Marble, Pearl L., Liscomb  
 Marble, Willard P., Marshalltown  
 Marek, Joseph E., Mason City  
 Maresh, George, Iowa City  
 Maris, Cornelius, Sanborn  
 Maris, Gerrit, Hull  
 Maris, William, Sioux Center  
 Mark, Edward M., Manilla  
 Marker, John L., Davenport  
 Marquis, Fred M., Waterloo  
 Marquis, George S., Mitchellville  
 Marr, James, Silver City  
 Marsh, William E., Eldora  
 Marston, Charles L., Mason City  
 Martin, George H., Eagle Grove  
 Martin, Hobart E., Clinton  
 Martin, John F., Latimer  
 Martin, John W., Des Moines  
 Martin, Loran M., Fort Dodge  
 Martin, Roland, Sioux City  
 Martin, Sidney D., Carroll  
 Mason, Harry P., Wilton Junction  
 Mason, James H., Plainfield  
 Mason, Stella M., Mason City  
 Masson, Hervey F., Washington  
 Mast, Truman M., Ottumwa  
 Mathes, Dwight A., Iowa City  
 Matheson, John H., Des Moines  
 Mathias, John P., Mediapolis (L.M.)  
 Mathiasen, Henning W., Persia  
 Matthews, Damon G., Milton  
 Matthews, Robert J., Clarinda  
 Matthey, Carl H., Davenport  
 Matthey, Walter A., Davenport  
 Mattison, George, Akron  
 Maurer, George A., Le Mars  
 Mauritz, Emory L., Des Moines  
 Maxwell, Charles T., Sioux City  
 Maxwell, George B., Davenport  
 Maxwell, John, What Cheer  
 May, George A., Des Moines

- May, John A., Manchester  
 Maynard, James, Adair  
 Mead, Frank N., Cedar Falls (L.M.)  
 Meany, John F., Rockwell  
 Meents, Diedrich J., Fort Madison  
 Meffert, Clyde B., Iowa City  
 Mehler, Frank R., New London  
 Melgaard, Bennett A., Sioux City  
 Mellen, Robert G., Clinton  
 Melrose, Maurice C., Independence  
 Mengert, William F., Iowa City  
 Mercer, Clifford D., West Union  
 Meredith, Loren K., Des Moines  
 Mereness, Herbert D., Dolliver  
 Merkel, Arthur E., Ankeny  
 Merkel, Byron M., Des Moines  
 Merrick, John H., Cherokee  
 Merrill, Charles H., Oskaloosa  
 Merrill, Nelson, Marshalltown  
 Merritt, A. Maxwell, Des Moines  
 Mershon, Clinton E., Adel (L.M.)  
 Meyer, Alfred K., Clinton  
 Meyer, George R., Gladbrook  
 Meyer, Milo G., Marshalltown  
 Meyers, Frank W., Dubuque  
 Meyers, Henry A., Davenport  
 Michel, Bernard A., Dubuque  
 Middleton, George M., Davenport  
 Miley, George P., Cedar Rapids  
 Miller, Brownlaw B., Tabor  
 Miller, Bird H., Blockton (L.M.)  
 Miller, Chester I., Iowa City  
 Miller, Enos D., Wellman  
 Miller, Johannes J., Ackley  
 Miller, Lawrence A., North English  
 Miller, Oscar H., Estherville  
 Miller, William B., Centerville  
 Millice, Glenn B., Battle Creek  
 Mills, Ernest M., Le Grand  
 Mills, Frank W., Ottumwa  
 Minassian, Harootune A., Des Moines  
 Minassian, Thaddeus A., Des Moines  
 Miner, James B., Sr., Charles City  
 Miner, James B., Jr., Charles City  
 Minkel, Roger M., Swea City  
 Missman, Walter F., Klemme  
 Mitchell, Claire H., Indianola  
 Moen, Harry P., West Union  
 Moerke, Albert C., Burlington (L.M.)  
 Moerke, Robert F., Burlington  
 Moershel, Henry G., Homestead  
 Mol, Henry L., Grundy Center  
 Montgomery, Albert E., Bancroft  
 Montgomery, Earl C., Atlantic  
 Montgomery, Edward S., Grant  
 Montz, Fred, Lowden  
 Moon, Barclay J., Cedar Rapids  
 Moore, Daniel V., Sioux City  
 Moore, Edwin A., Harlan  
 Moore, Fred, Des Moines  
 Moore, Harold H., Ottumwa  
 Moore, Jesse C., Eldon  
 Moore, John H., Liberty Center  
 Moore, Morris, Walnut  
 Moore, Paul M., Jr., Iowa City  
 Moore, Pauline V., Solon  
 Moore, Walter N., West Branch  
 Morehead, Giles C., Ida Grove (L.M.)  
 Moorhead, Harold B., Underwood  
 Moran, Thomas A., Melrose  
 Morden, Richard P., Des Moines  
 Morden, Roy R., Des Moines  
 Morgan, Earl E., Sioux City  
 Morgan, Harold W., Mason City  
 Morgenthaler, Otis P., Templeton  
 Morris, Zenella E., Stockport  
 Morrison, Edward D., Fort Dodge  
 Morrison, John W., Alta  
 Morrison, Orry C., Carroll  
 Morrison, Roland B., Carroll  
 Morrison, Wesley J., Cedar Rapids  
 Morse, Charles H., Eagle Grove (L.M.)  
 Morton, Elmer E., Palmer  
 Morton, Mathew T., Estherville  
 Moskovitz, Julius M., Council Bluffs  
 Moth, Robert S., Council Bluffs  
 Mott, William H., Farmington  
 Moulton, Milo W., Bellevue  
 Mountain, Elmer B., Des Moines  
 Mueller, Byron I., St. Charles  
 Mueller, Emil F., Dyersville  
 Mueller, James A., Fenton  
 Muench, Virgil O., Nichols  
 Muhs, Emil O., Durant  
 Mullmann, Arnold J., Adel  
 Mulrow, Frederick W., Cedar Rapids  
 Mumma, Claude S., Des Moines  
 Munden, Ralph E., Cedar Rapids  
 Munger, Elbert E., Spencer  
 Munger, Elbert E., Jr., Spencer  
 Murchison, Kenneth, Sidney  
 Murphy, Arlo L., Fredericksburg  
 Murphy, Cornelius B., Alton  
 Murphy, Frank J., Sioux City  
 Murphy, George C., Waterloo  
 Murphy, Joseph J., Cedar Rapids  
 Murray, Frederick G., Cedar Rapids  
 Myers, Edward M., Boone  
 Naftzger, Jesse B., Sioux City  
 Nash, Edwin A., Evely  
 Natale, Pasquale F., Des Moines  
 Neal, Emma J., Cedar Rapids  
 Nederhiser, Morgan I., Cascade  
 Needles, Roscoe M., Anita  
 Negus, Cora W., Keswick  
 Nelson, Arnold L., Winterset  
 Nelson, Caryl L., Waterloo  
 Nelson, Carroll C., Red Oak  
 Nelson, Fred L., Ottumwa  
 Nelson, Harry E., Dayton  
 Nelson, Ira D., Toledo  
 Nelson, Leo C., Des Moines  
 Nelson, Paul O., Ayrshire  
 Nelson, Robert J., Clinton  
 Nervig, Isaac E., Sioux City  
 Nesler, Alfred B., Dubuque  
 Netolicky, Joseph, Solon  
 Netolicky, Robert Y., Cedar Rapids  
 Netolicky, Wesley J., Cedar Rapids  
 Neufeld, Frank, Davenport  
 Neuzil, William J., Cedar Rapids  
 Newcomer, Lloyd E., Long Beach, Calif.  
 Newell, William C., Ottumwa  
 Newland, Don H., Belle Plaine  
 Newland, John E., Center Point  
 Newland, Elmer R., Drakesville  
 Newton, Dennis L., Fort Madison  
 Niblock, George F., Derby  
 Nicholson, Clyde G., Spirit Lake  
 Nicoll, Charles A., Panora  
 Nicoll, David T., Mitchellville  
 Nielsen, Rudolph F., Cedar Falls  
 Nielson, Arthur L., Harlan  
 Nohle, Earl H., Clemons  
 Noble, Frederick W., Fort Madison  
 Noble, Harold F., Fort Madison  
 Noble, Lloyd E., Rhodes  
 Nohle, Nelle S., Des Moines  
 Noble, Rusl P., Cherokee  
 Noe, Carl A., Amana  
 Noe, Charles F., Amana (L.M.)  
 Noonan, James J., Marshalltown  
 Nordgren, Esais, Des Moines  
 North, Frank R., Winfield  
 Norman, Edith E., Phoenix, Ariz.  
 Norton, Alva C., Rockwell City (L.M.)  
 Noun, Maurice H., Des Moines  
 Nourse, Leslie M., Des Moines  
 Nowak, Edward C., New Hampton  
 Null, Frederick F., Hawarden  
 Nyquist, David M., Eldora  
 Nysewander, Christian, Des Moines (L.M.)  
 O'Brien, Cecil S., Iowa City  
 O'Brien, Stephen A., Mason City  
 O'Donoghue, Arch F., Sioux City  
 O'Donoghue, James H., Storm Lake  
 O'Keefe, John E., Waterloo (L.M.)  
 O'Keefe, Matthew E., Council Bluffs  
 O'Keefe, Paul T., Waterloo  
 O'Leary, Francis B., George  
 O'Toole, Laurence C., Le Mars  
 O'Toole, Thomas J., Eagle Grove  
 Ober, Frank G., Burlington  
 Obermann, Charles F., Cherokee  
 Odell, Isaac H., Des Moines  
 Oelrich, Carl D., Sioux Center  
 Oggel, Herman D., Maurice  
 Oldaz, George C., Paullina  
 Oliver, Arthur J., Muscatine (L.M.)  
 Olsen, Martin I., Des Moines  
 Olson, Evelyn M., Winterset  
 Olson, Oscar E., Red Oak\*  
 Olson, Russell L., Northwood  
 Osborn, James W., La Feria, Texas (L.M.)  
 Osborn, C. Robert, Menlo  
 Osineup, Frank A., Waverly\*  
 Osnes, Elias N., Readlyn  
 Ott, Martin D., Davenport  
 Otto, Paul, Fort Dodge  
 Overton, Lewis M., Des Moines  
 Owen, William E., Cedar Rapids  
 Pace, Arthur A., Toledo  
 Padgham, James B., Oheeyedan  
 Padgham, John T., Grinnell  
 Page, Addison C., Des Moines  
 Pagelsen, Otto H., Iowa Falls  
 Pahlas, Henry M., Dubuque  
 Paige, Ralph T., La Porte City  
 Painter, Jesse C., Dubuque  
 Paisley, Alfred M., Keokuk  
 Palen, Charles, Dubuque  
 Palmer, Carson W., Guttenberg  
 Parish, John R., Grinnell  
 Parish, Ora F., Grinnell (L.M.)  
 Park, Elmer R., Sioux City  
 Parker, Bernard, Centerville  
 Parker, Edward S., Ida Grove  
 Parker, James D., Fayette  
 Parker, Robert L., Des Moines  
 Parker, William W., Floris  
 Parriott, Robert P., Des Moines  
 Parry, Roy E., Scranton  
 Parsons, Harry C., Iowa City  
 Parsons, Irving U., Malvern (L.M.)  
 Parsons, John C., Creston  
 Parsons, Percival L., Traer  
 Paschal, George A., Williams  
 Patchin, Horace J., Maxwell  
 Patterson, Alpheus W., Fonda  
 Patterson, James C., Marengo  
 Patterson, John N., Burlington (L.M.)  
 Patterson, Roy A., Webster City  
 Pattison, Arthur C., Iowa City  
 Paul, John D., Anamosa  
 Paulsen, Herbert B., Harris  
 Paulus, Edward W., Iowa City  
 Pearson, George J., Burlington  
 Pearson, William W., Des Moines  
 Peart, John C., Dixon  
 Pease, Herbert, Blairsburg  
 Peasley, Harold R., Des Moines  
 Peck, John H., Des Moines  
 Peck, Raymond E., Davenport  
 Peisen, Conan J., Des Moines  
 Penquite, Harry H., Massena  
 Perkins, Franklin C., Hedrick  
 Perkins, Rolla W., Sioux City  
 Pershing, Frank O., Keota  
 Peschau, Waldo E., Cedar Rapids  
 Peters, Warren T., Burt  
 Peterson, August J., Forest City  
 Peterson, Frank R., Iowa City  
 Peterson, Ray W., Kanawha  
 Petrovitsky, John C., Cedar Rapids  
 Petty, Wallace S., Sioux City  
 Pfaff, Richard O., Des Moines  
 Pfannebecker, William, Sigourney  
 Pfeiffer, Ernest, Hartley  
 Pfeiffer, Harry E., Cedar Rapids  
 Pfohl, Anthony C., Dubuque  
 Phillips, Albin B., Clear Lake  
 Phillips, Clarence P., Muscatine  
 Phillips, Isaac H., Missouri Valley  
 Phillips, Jesse H., Montezuma (L.M.)  
 Phillips, Norman W., Clear Lake  
 Phillips, Walter B., Davenport  
 Piercy, Kenneth C., Maxwell  
 Pierson, Lawrence E., Sioux City  
 Pitcher, Jonathan J., Mt. Pleasant  
 Plant, Oscar H., Iowa City  
 Plass, Everett D., Iowa City  
 Plummer, George A., Cresco  
 Plummer, Herbert W., Lime Springs  
 Poepsel, Frank L., West Point  
 Pollock, Roscoe, Douds  
 Porath, William C., Storm Lake  
 Porstmann, Louis J., Davenport



- Porter, Clarence M., Woodward  
 Porter, Robert J., Des Moines  
 Porter, Samuel D., Grinnell  
 Porterfield, Frank W., Waterloo  
 Posner, Edward R., Des Moines  
 Potter, Jacob J., Iowa City  
 Potter, William, Galt  
 Powell, Burke, Albia (L.M.)  
 Powell, Lester D., Des Moines  
 Powell, Velura E., Red Oak  
 Powers, Francis E., Boone  
 Powers, Fred W., Waterloo (L.M.)  
 Powers, Henry R., Emmetsburg  
 Powers, Ivan R., Waterloo  
 Powers, Joseph C., Hampton  
 Preece, Wade O., Waterloo  
 Prentice, George L., Packwood  
 Presnell, J. William, Scranton  
 Presnell, William H., Charlotte  
 Prettyman, Oscar R., Mason  
 Prewitt, Leland H., Ottumwa  
 Price, Alfred S., Des Moines  
 Priessman, Frank A., Keokuk  
 Priestley, Joseph B., Des Moines  
 Pringle, Jesse A., Bagley (L.M.)  
 Proctor, Rothwell D., Cedar Rapids  
 Purcell, Bert E., Iowa Falls  
 Purdy, William O., Des Moines  
 Putnam, Chester L., Holstein  
 Quinn, Charles F., Cherokee (L.M.)  
 Quinn, Francis, Dubuque  
 Quire, Frank E., Lynnville  
 Raffington, Donald L., Creston  
 Ralston, Furman P., Knoxville  
 Rambo, Cyrus C., Creston  
 Rambo, David T., Ottumwa  
 Rambo, Eli F., Webster City  
 Randall, John H., Iowa City  
 Rankin, Isom A., Iowa City  
 Rankin, John R., Keokuk  
 Rankin, William, Keokuk  
 Ransom, Harry E., Des Moines  
 Rater, David L., Ottumwa  
 Rathe, Herbert W., Waverly  
 Ravitts, Joseph L., Montezuma  
 Raw, Elmer J., Pierson  
 Rawson, Charles D., Des Moines (L.M.)  
 Redmond, Thomas M., Monticello  
 Redmond, William H., Cedar Rapids  
 Reed, Andrew I., Estherville  
 Reed, Guy P., Davis City (L.M.)  
 Reed, Paul A., Iowa City  
 Reed, Purl E., Council Bluffs  
 Reed, Roe B., Clearfield  
 Reeder, James E., Sioux City  
 Reiley, William S., Red Oak  
 Reimers, Robert S., Fort Madison  
 Reinicke, Edward L., Dubuque  
 Reinsch, Frank, Ashton  
 Reiter, Alfred E., Melcher  
 Render, Norman D., Clarinda  
 Rendleman, William H., Davenport  
 Reuber, Roy N., Mason City  
 Reuling, Frank H., Waterloo  
 Reutter, Garfield A., Blanchard  
 Reynolds, Albert C., Mingo  
 Reynolds, Earl O., Greenfield  
 Rice, Alfred G., Tipton  
 Rice, Floyd W., Des Moines  
 Rice, Raymond M., Council Bluffs  
 Richards, Frank O., Winterset  
 Richardson, Leon F., Collins  
 Richmond, Frank R., Fort Madison  
 Ridenour, Joseph E., Waterloo  
 Riggert, Leonard O., Clinton  
 Riley, John, Exira (L.M.)  
 Rimel, George W., Bedford  
 Ringena, Engelke J., Brooklyn  
 Riordan, James C., Pocahontas\*  
 Risk, Howard, Oelwein  
 Ritchey, Sterling J., Colfax  
 Ritter, John F., Maquoketa  
 Roark, George L., Tabor  
 Robb, James B., Chariton  
 Robbins, Jesse H., Sioux City  
 Roberts, Brockway D., Wayland  
 Roberts, Francis M., Knoxville  
 Robertson, Andrew A., Council Bluffs  
 Robertson, W. R. B., Ph.D., Iowa City  
 Robinson, John B., Mt. Vernon (L.M.)  
 Robinson, Robert E., Waverly  
 Rock, John E., Davenport  
 Rodawig, Donald F., Spirit Lake  
 Rodemeyer, Frederick H., Sheffield  
 Roder, Carl F., Dumont  
 Rodgers, Lewis A., Oskaloosa  
 Roe, Cullen B., Afton  
 Rogers, Claude B., Earlville  
 Rogers, Marion W., Leon  
 Rohlf, Edward L., Waterloo (L.M.)  
 Rohlf, William A., Waverly  
 Rohner, Frank J., Iowa City  
 Rohrbacher, William M., Iowa City  
 Rolfs, Fred A., Aplington  
 Roost, Frederick H., Sioux City  
 Rose, Alvin A., Story City  
 Rose, Joseph E., Grundy Center  
 Rosenblatt, Louis M., Minden  
 Rosenthal, Nana L., Nevada  
 Ross, Arthur J., Perry (L.M.)  
 Rowan, Charles J., Santa Monica, Calif.  
 Rowley, William G., Sioux City  
 Rowse, Robert Q., Sioux City  
 Royal, Lester A., West Liberty  
 Royal, Malcolm A., Des Moines  
 Ruark, William T., Iowa City  
 Ruml, Wentzle, Cedar Rapids  
 Rusk, Lester D., Sioux City  
 Russell, Charles R., Keosauqua  
 Russell, Elwood P., Iowa City  
 Russell, John, Des Moines  
 Russell, Ralph E., Waterloo  
 Rust, Emery A., Webb  
 Ruth, Verl A., Des Moines  
 Ryan, George C., Maquoketa  
 Ryan, Granville N., Des Moines  
 Ryan, J. Charles, Des Moines  
 Ryan, Martin J., Sioux City  
 Saar, Jesse L., Donnellson  
 Saffey, Agnes I., Cedar Rapids  
 Sage, Erwin C., Eagle Grove  
 St. Onge, Joseph A., Sioux City  
 Sala, Ono P., Davenport  
 Sallander, Frederick W., Sioux City  
 Sampson, Carl E., Creston  
 Sampson, Frank E., Monterey Park, Calif. (L.M.)  
 Sams, Joseph H., Clarion (L.M.)  
 Sanders, George E., Des Moines  
 Sanders, Matthew G., Fort Dodge  
 Sanders, William E., Des Moines  
 Sarff, Floyd G., Logan  
 Sartor, Pierre, Titonka  
 Sawyer, Grace M., Woodward  
 Sawyer, Prince E., Sioux City  
 Saylor, Harley L., Des Moines  
 Sayre, Ivan K., St. Charles  
 Scanlan, George C., De Witt  
 Scanlan, Maurice, De Witt  
 Scanlon, George H., Iowa City  
 Scannell, Raymond C., Vail  
 Schadt, Frederick C., Williamsburg  
 Schaefer, Paul H., Burlington  
 Schanche, Arthur N., Ames  
 Scharle, Theodore, Dubuque  
 Scheele, Matthias H., Dubuque  
 Schenk, Erwin, Des Moines  
 Schier, Anton R., Woodward  
 Schifferle, Edward, Creston (L.M.)  
 Schilling, Nicholas, New Hampton  
 Schmidt, Bernard H., Davenport (L.M.)  
 Schmitt, Robert W., Scranton  
 Schmitz, Henry C., Des Moines  
 Schnug, George E., Dows  
 Schoon, Harold W., Sibley  
 Schriber, Paul W., Incline, Calif.  
 Schroeder, Frank N., Ryan  
 Schroeder, Leslie V., Walcott  
 Schroeder, Peter H., Davenport  
 Schroeder, William, Thompson  
 Schrup, Joseph H., Dubuque (L.M.)  
 Schultz, Albert A., Fort Dodge  
 Schultz, Ivan T., Humboldt  
 Schultz, Nelle E. T., Humboldt  
 Schumacher, Arthur H., Fort Dodge  
 Schwartz, John W., Sioux City  
 Scott, Homer W., Fort Dodge  
 Scott, Philip A., Emmetsburg  
 Scott, Sophie H., Des Moines (L.M.)  
 Scott, Walter, Sioux City  
 Scott, Walter E., Adel (L.M.)  
 Scruby, Leone M., Des Moines  
 Sebern, Richard C., Fort Dodge  
 Secoy, Frank L., Sioux City  
 Sedlacek, Leo B., Cedar Rapids  
 Seibert, Cecil W., Iowa City  
 Seidler, William A., Jamaica  
 Seiler, Raymond A., Blairtown  
 Sellards, Joseph W., Clarinda  
 Sells, Benjamin B., Independence  
 Sells, Frank W., Osceola  
 Selman, Ralph J., Blakesburg  
 Senska, Frank R., Mount Sterling  
 Senty, Elmer G., Davenport  
 Severson, George J., Slater  
 Shafer, Lee E., Davenport  
 Shane, Robert S., Pilot Mound  
 Shannon, Edwin R., Waterloo  
 Sharon, James P., Fort Dodge  
 Shaw, Albert E., Des Moines  
 Shaw, David F., Britt  
 Shaw, Ernest E., Indianola  
 Shaw, Matthew M., Madrid  
 Sheafe, Edward A., Ottumwa  
 Sheldon, Benjamin L., Cedar Rapids  
 Shellito, Amos G., Independence (L.M.)  
 Shelton, Charles D., Bloomfield  
 Sherman, Ellen A., McGregor (L.M.)  
 Sherman, Elmer E., Keosauqua  
 Sherman, Richard C., Farley  
 Shipley, John H., Rippey (L.M.)  
 Shipley, William M., Ottosen  
 Shirley, Hale F., Iowa City  
 Shirley, Wayne M., Carroll  
 Shively, Jay D., Osceola  
 Shonka, Thomas E., Malvern  
 Shorey, Joseph R., Davenport  
 Shrader, John C., Fort Dodge  
 Shulkin, Samuel H., Sioux City  
 Shumate, C. Frank, Miles  
 Sibley, Samuel E., Sioux City  
 Sievers, Claudius L., Denison  
 Sigworth, Fred B., Anamosa  
 Simeral, Fred E., Brooklyn  
 Simmons, Ralph R., Des Moines  
 Simones, John J., Dubuque  
 Sinn, Irwin J., Williamsburg  
 Sinning, Augustus, Iowa City  
 Sinning, John E., Melbourne  
 Skallerup, Walter M., Walker  
 Skelley, William F., Davenport  
 Skinner, Frank S., Marion  
 Slattery, Joseph T., Dunlap  
 Slavin, Charles T., Moravia  
 Sloan, Arthur N., Pomona, Calif.  
 Small, William B., Waterloo (L.M.)  
 Smead, Leslie L., Newton  
 Smillie, Benjamin A., Gilmore City  
 Smith, Arthur F., Manning  
 Smith, Cecil R., Onslow  
 Smith, C. Colfax, Clarksville  
 Smith, Channing G., Granger  
 Smith, Edgar F., Storm Lake  
 Smith, Eugene E., Waterloo  
 Smith, Ferdinand J., Milford (L.M.)  
 Smith, Frank L., Newton  
 Smith, Frank S., Nevada (L.M.)  
 Smith, Frank W., Red Oak  
 Smith, Franklin C., Mt. Ayr  
 Smith, Fred M., Iowa City  
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### DISEASES OF THE PETROUS PORTION OF THE TEMPORAL BONE FROM THE STANDPOINT OF THE GENERAL MEDICAL MAN, THE NEUROLOGIST, AND THE OTOLOGIST\*

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In presenting the above topic I am endeavoring to do so from the standpoint of the internist, the pediatrician who first sees these cases, from the neurologist's standpoint who comes into the case as the complications develop, and only incidentally, this morning, from the standpoint of the otologist, because, in the development of the recognition of this lesion, we were faced with a series of tragedies. These tragedies occurred while the patient was in the hands of the internist, while the patient was in the hands of the pediatrician, while the patient was being examined, and during and after the examinations of the neurologist, none of whom a few years ago recognized the sequence of events which were taking place as a pathologic entity, and which usually terminated in a meningitis.

All the suppurative lesions which we have in the head terminate, when they get out of hand, in meningitis. It was in the search for a method of successfully handling meningitis that this by-product developed, and now literature teems with it, but the laboratory and technical findings of the specialties have not yet successfully bridged the gap to reach the bedside of the average man. Therefore, it is most timely and proper that one of us should, in the language that the internist, the neurologist and the pediatrician understands, and with no stress on otologic technicalities, discuss this matter in an effort to spread the knowledge and make it useful at the average bedside.

What we first failed to realize was the fact that in every infection of the middle ear, in everybody,

infant, adolescent and the aged, all the mastoid cells are simultaneously involved, yet not every otitic infection, as everyone knows, becomes a surgical mastoiditis. What we forgot, or what we overlooked, was the fact that the middle ear stands as a box between, on the one side, the mastoid process and, on the other side, the petrosal process, and that exactly the same series of events, pathologically, develop in the mastoid process as develop in the petrous process. We have spent decades in developing systems and methods of handling the mastoidal infections. The only recognition that the petrosal infections received was when a complete autopsy was done, the temporal bones removed in section, pus was found, broken down detritus and infective material was found in the petrosa, and it was comprehended as an incident to the meningitis. No one realized that a sequence of events took place before and during the process of travel of that lesion from the middle ear to the petrosa, and eventually to the dura. It is to stress what heretofore have been considered insignificant symptoms and to show you their significance that I am here before you this morning.

Because of your familiarity with mastoidal infections and their general symptomatology, let me keep the analogy clear before you. There was a time in everybody's recollection when the diagnosis of a mastoidal infection was not made until there was a swelling over the mastoid process; in other words, until a break-through had occurred and there was a subperiosteal abscess. Then, surely, the surgeon was called in—the otologic surgeon was called in—and the patient was submitted to operation. There are today pediatricians who will not call on otologic aid until such rupture has taken place. So, at that stage of our knowledge, the diagnosis and indications for therapy were, say, limited to the time when the lesion had become perimastoidal.

In regard to the petrosal infections, we recognize the gravity of the lesion, we realize how dangerous the patient's situation is, when the lesion becomes peripetrosal, but we fail to recognize the

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lesion while it is intrapetrosal because the symptoms are very transient and are very slight. They are still sufficiently evident that any clinician worthy of the name, with the clinical sense that makes medicine the high art that it is, can recognize them, and one need not be an otologist to do so. In fact, the majority of times, at that stage in the lesion, the case is in the hands either of the pediatrician or the internist, the general practitioner. What, then, is the picture?

Before going into a detail of the clinical picture, let us briefly review the lesions. I have learned long ago to consider my clinical picture as one looks at the screen of a moving picture, if the moving picture, in the course of its unreeling, were stopped at a certain time. The pathology is dynamic and moving. The doctor comes in, sees one flash of it and goes away, and the erroneous conception is held that that pathology is static; it isn't. It is just as if the operator on the movie screen stops the picture long enough to pick up details, and when you go away, he unreels it. So with the lesion in the petrosa, you see something but many of you pass it by, but the pathology continues until it breaks through. Basically, we cannot get away from the pathology; there it is. The pathology that develops is dependent upon the tissue where the infection is located. In other words, a pneumococcus seating itself in the lungs produces within the lungs a certain given pathology. That same pneumococcus seating itself in the meninges produces a different kind of pathology, due to the structure of the tissues upon which it is here located.

We have in the temporal bone three types of bone, each of which is normal for its kind. We have a type of bone that is intensely aerated, pneumatized, and that is normal. We have another type of bone which is not pneumatized; it is hard as iron or stone, and that is normal for that patient. Then we have a type of bone which simulates the long bones of the body, with small marrow cells in it—the diploic type of bone, and that is normal for that individual. We have, then, these three types. An infection taking place in the middle ear structures, takes pathology based on those three forms. The ivory-like, hard bone is out; bacteria do not seem to affect it; and that leaves us two types, the aerated, pneumatized type, and the diploic type of bone which reacts to bacterial invasions. By and large, the lesion in the diploic type of bone is an osteomyelitis, and the type of lesion in the aerated, pneumatized bone is a coalescent osteitis. That being understood is it not natural that the first thing one does when one

approaches such a case, or in fact any ear case, is to seek to know what type of bone the patient has? One can then estimate, and prognosticate, what type of lesion that patient will develop, because on the type of lesion which that patient develops your therapy will be based, your prognosis will be based, and the possible development, or not, of this lesion which I am trying to talk about this morning will also be based.

There are a few other general characteristics. The osteomyelitic lesions usually occur in infants and children—very young children. Occasionally they occur among the adults. They always occur in the diploic type of bone. What, in a general sense, disregarding otology, are the characteristic, outstanding symptoms of an osteomyelitic infection? They are sepsis, peak temperatures, with pain at the site of the lesion. I do not know why, but usually in infants the osteomyelitic lesions have been found to be bilateral, and they must be drained surgically. An incision into the middle ear, through the drum, is not adequate for such drainage, because it does not reach and drain the pathologically involved lesion.

Where is the pain in the osteomyelitic lesion? The pain is characteristically periauricular; it is around the ear; it is in front of the ear. If there is a mastoiditis at the same time, of course there will be pain behind the ear. With the osteomyelitic lesion, pain around the ear, and, naturally, because of its adjacency, there is interference with the movement of the lower jaw. Suckling infants refuse the nipple, and do not take food. Beginning with pathology in the middle ear, with an increasing sepsis, or in a child old enough to tell of it, there is pain around the ear and in front of the ear, and you must not wait until this advancing sepsis becomes accompanied with pulmonary symptoms. That makes the attending physician on the case concentrate his attention upon the pulmonary lesion, or when infarcts occur in the abdomen, he concentrates his attention on the distended and infected abdomen which has been reached through the mediastinal glands, or the mesentery glands, because that set of symptoms is secondary and clouds the inevitable advance of the primary lesion of osteomyelitis in the petrosa, until the patients die, as they inevitably do, unless relieved, and another case is found at autopsy which could have been cured, had it been recognized, and adequately treated.

On the other hand, the metastasis can take place anywhere. Symptoms may appear denoting the presence of brain abscesses, usually multiple, and then you recognize this condition, but the stormy

meningeal picture supervenes, and the patient inevitably dies. At autopsy the primary lesion will be found to be an osteomyelitis in the petrosa which was overlooked during the dramatic development of the picture from the intracranial lesion.

Then we have a series of cases which all of us have seen. In these an acute attack has subsided, and a chronicity becomes established. In spite of every effort on the part of the attending otologist, in this instance, suppuration continues. Here there has been established leading into the middle ear spaces through one of several tracts, *a fistula* which leads from the petrosa and empties into the middle ear. This suppuration is a continuing effort, on the part of nature, to eviscerate the lesion. Eventually some of those cases heal and become dry because nature has succeeded in throwing off dead bone and detritus.

We now come to the cases in which I am more particularly concerned, and which are usually the ones that we see. These take place in a bone that is sufficiently aerated, in a bone that is pneumatized, and wherein, any time after the infection of the middle ear, a coalescent osteitis takes place in some part of the petrosal pyramid. The lesion in the petrosal pyramid usually develops simultaneously with the coalescent mastoiditis, and the drama and the intensity of the picture of the mastoiditis clouds and obscures the picture in the petrosa. Only after the mastoidectomy has been done and the dramatic, clinical picture from the mastoiditis has been eliminated do the quietly, insidiously, progressing symptoms from the petrosa make their appearance to the eye that is looking for them. It is to stress these that I want to expand a little and picture for you their clinical course.

In the petrosal pyramid, infection is not a complication of mastoiditis. They are, figuratively speaking, miles apart, and by very little stretch of the imagination one can be the complication of the other, but both originate at the crossroads—the tympanic cavity—and the lesion spreads to the mastoids on the one hand and to the petrosa on the other hand, more or less simultaneously. In some instances, perhaps in the majority of instances, a well performed mastoidectomy stops the progress of the petrosal lesion, for if that were not true, every case of mastoiditis would eventually come to autopsy because of an unrecognized petrosal infection. We know that a great number of patients with petrosal infection recover spontaneously after mastoidectomy. With those cases we need not be concerned. We are concerned with the group of patients who do not recover.

What, then, are the symptoms that these show? Unlike osteomyelitic lesions, they do not show a periauricular pain, the septic type of temperature, nor, pulmonary and abdominal metastases or infarcts, but they do show *pain in and around the eye*, and that is like the red flag on the track, it must stop the train; it is absolutely significant! Hundreds of mastoidectomies and mastoid infections will pass through your hands, but when one shows pain in and around the eye, be on your guard. That is significant. One need not be an otologist to hear and know that. One need not be an expert technician to diagnose that. There is only one other lesion in the ear that gives you pain in and around the eye, and even without a laboratory and a roentgenologic department, you can still eliminate the other lesion that produces pain in and around the eye, and comprehend its significance as a diagnostic sign of petrosal pyramid involvement. The roots of the zygoma are sometimes aerated, cellular and pneumatic. Occasionally the lesion spreads not only to the mastoid process, but also to the petrosa and likewise it can spread to the pneumatized zygomatic root. In the process of a mastoidectomy, if such a zygomatic root has not been thoroughly opened and eviscerated, your patient may show and may give the symptom of pain in and around the eye and yet simply have a zygomatic infection. In other words, your patient presents what the literature has come to call "zygomatic otitis." This lesion is easily eliminated. If the patient complains of pain in and around the eye, open the wound and look into the zygome, if you do not have ready access to an x-ray machine. If one is available, a roentgenogram will show you a negative petrous. If you have pain in and around the eye, with a negative roentgen-film, you are dealing with an infection of the zygome. On the other hand, if you get a positive x-ray, the lesion will be found located in the petrosa.

In the petrosa there are certain structures that everybody knows. That is the hieroglyphic of the middle ear, the petrosa here, and the mastoid which we are not concerned with. In this area is the internal ear. As the lesion goes from the tympanic cavity to involve this tip, it passes very sensitive, probably the most sensitive structure in our body, *the labyrinth*, the internal ear, the structure by which you know you are sitting, the structure that coordinates us "to the universe." As the lesion goes by this labyrinth, it drops a semaphore, but it does not drop it long, because when the train has passed, the rumble ceases, and then there is quiet again. While it is passing, the



labyrinth naturally reacts, and you have temporary vertigo, with temporary nystagmus, which has no particular fixity of direction; but, in contradistinction to a real lesion there, *the hearing* is not involved, the patient still hears. The cochlea is functioning. Cerebellar tests of coordination, are perfectly normal. Through the middle ear, the facial nerve shows reactions, and there is a temporary paresis, or a temporary paralysis. It may be present in the morning and gone in the afternoon. All this takes place with hardly any temperature, and headache, although there is the eye pain, at first periodic and nocturnal; gradually increasing in intensity, until it becomes steady. It is a reaction from the first branch—one of the branches—there is a quarrel on among us, details which need not concern us here—of the fifth nerve. Sometimes there is a difference between the size of the pupil on the affected side as compared with the other. All these symptoms cease as the lesion progresses and the whole story seems to be over, the whole symptomatology has disappeared.

Patients are brought to your office complaining of "carsickness." They rode cars before and never were carsick. Then some will explain that they had a little vomiting spell, and account for it in that they had too much company the day before! I never knew yet what palliative was explained when the patient had a facial paralysis! Probably laughed too much at some joke that grandfather gave the day before; and the face stayed that way! Those are the misleading excuses for the symptoms, because they are so slight. Thus the symptoms pass, and the patient, to all intents and purposes, seems normal. For want of a better name, we, that is Almour and I, have called this the *quiescent stage*. Terminating the quiescent stage there appears frontal headache, a rise in temperature, a rise in blood pressure, preceding a rise in intracranial pressure and cerebrospinal pressure, the opisthotonos, and all the other signs which mark a termination in meningitis unless nature takes a hand and, from one or another of these areas, starts a tract that drains itself. As long as it drains, the symptoms are generally in abeyance. If the drainage is blocked, a little thickening of the discharge, a little spicular of bone in the tract of egress, because these tracts are small, and the backing-up process again takes place; the pain in the eye reappears, and a little irritation from the labyrinth may reappear. Again, the discharge spurts from the tympanic cavity until a break occurs similar to the break over the mastoid, and an epidural formation of pus

occurs. Or it breaks down into the neck tissues and a retropharyngeal abscess appears, and drainage takes place from there. Three of my own patients drained that way and recovered.

As soon as the break-through occurs, peripetrosal signs appear. Sometimes other nerves are involved—the ninth, tenth or eleventh. The lesion has now reached the meninges. The neurologist plays his part, and he often thinks of all kinds of metastases, but he forgets that the lesion here described occurs by contiguity of tissue. There are a whole group of men in this country today who still wait for a peripetrosal diagnosis rather than the intrapetrosal diagnosis, to the detriment of their patients.

Summarizing, then, we have in the mastoid process, as we have in the temporal bone, three types of bone: the pneumatic, the diploic and the sclerotic or ebonized. The sclerotic or ebonized is not concerned with the lesions here. Most of the osteomyelitic lesions occur in the diploic type of bone. As a rule, they occur clinically in the young. They give a clinical picture of sepsis, and when seen later, of pulmonary, cardiac and abdominal involvement which clouds the clinical picture. The autopsy shows the primary osteomyelitic lesion to be in the petrosa. There remains a question of some diarrheas of infancy, the French authorities believing at any rate, that in many cases we are dealing with this type of infection as the prime factor in these fatal diarrheas. We have the pneumatized petrosa wherein coalescent osteitis takes place, and is signalized by periodic pain in and around the eye, a low grade temperature, and a recurrence of the ear discharge. We can expect in a properly performed mastoidectomy on a properly selected and timed case to have a dry ear at the end of a week. The recurrence of the discharge, with the eye pain and the positive roentgen picture, makes the diagnosis. The roentgen picture alone *does not* make the diagnosis. The eye pain alone does not make the diagnosis, nor the recurrence of discharge *alone* does not make the diagnosis; but the three together make the diagnosis.

Then you have, in addition, transient signs from the labyrinth, perilabyrinth, osseous perilabyrinth otitis, technically. The tissues around the labyrinth become involved, and there is an irritated reaction in the labyrinth. The cochlea is alive and the patient hears. The duration of that period is indefinite; then it disappears.

I have been asked, when attending such cases, "How do you know this patient is not healing? Why don't you leave the patient alone, because

you say many of them heal?" My answer is, "Look at that ear discharge. You have a right to expect a dry ear, having performed a proper mastoidectomy. Yet when you wipe the pus away, and press your hand lightly on the internal jugular vein, a spurt of pus occurs, a condition almost similar to that your otoscopic examination gave prior to the mastoidectomy. This finding must be explained and with such findings the case is not healing. It is progressing through the quiescent stage.

There is an active lesion in that bone, and I do not wait for the termination of this quiescent stage, and the inevitable blow-up, because then I am almost helpless, unless somebody has found the means of successfully handling a streptococcic meningitis. This, nobody to my knowledge, as yet has entirely successfully done. Later, even with perforation, they sometimes recover. I have a case in which my lipiodol injection went all over the tentorium, went down even into the foramen magnum. Some of the lipiodol seeped into the spinal column. That patient is well, because the infection in the meninges was the overflow from the lesion which was located in the bone. The operation removed the bone lesion, and nature took care of the overflow. The tissues were not yet involved. We also have cases with fistula. In the therapy, the diagnosis here is not only a diagnosis of the lesion *per se*, but it is the diagnosis and selection of the type of therapy to be employed. Before one goes further in the selection of therapy, one makes a most minute search for fistula. When one finds fistula, half the battle is won. With these symptoms present and no fistula found, and your x-rays showing a "washed-out" tip, there is but one answer to the problem—adequate local surgery. The progress we have made lies in the fact that every portion of that petrosal pyramid is reachable surgically without creating a facial paralysis and without destroying the labyrinth; except in one area, in the posterior cranial fossa, anterior to the internal auditory meatus. When a lesion is diagnosed in that position, we are still helpless. No one yet has devised a means of reaching that area. We are trying; we haven't succeeded as yet. All manner of technics or any one of the proposed technics can be used. Our differences of opinion as to technic are the pleasant pastimes of otologists among themselves and have no place in a general meeting, such as this. But one should be selected to suit the lesion which is diagnosed. Nor is it at all necessary to carry out extensive explorations of the cranial cavity, if you can and do diagnose the lesion while it still is within the limits of the petrosal pyramid.

## APPLIED ANATOMY OF DEEP SUPPURATIONS OF THE NECK\*

EUGENE W. SCHELDROP, M.D., Iowa City

It will be seen from the program that my talk to you is titled as above, but with your permission, I should like to modify this to be "A brief review of some fundamental anatomic concepts of the neck and their surgical application." I also ask your indulgence if I seem to dwell too long on elemental considerations. I do this because I feel it is only through a thorough understanding of the basic structure of the neck that we are able successfully to apply this anatomic knowledge. My plan is to develop the anatomy of the neck particularly as it relates to the drainage of the retropharyngeal and pharyngomaxillary spaces.

The neck may be conveniently divided into two portions, a posterior portion consisting of the cervical vertebrae and the muscles attached to them, and an anterior or visceral portion consisting of the cervical portions of the respiratory and digestive tracts and the great vascular sheaths extending from the thoracic inlet below to the base of the skull above. As far as the neck musculature is concerned, broadly we may speak of three layers. A superficial layer, consisting of the trapezius behind and the sternocleidomastoid laterally; an intermediate layer applied to the visceral compartment which we call the suprahyoid and infrahyoid muscles; and the deep layer, those muscles attached to the cervical vertebrae. Because the description of these various muscle layers and their associated fascias, and the visceral compartment and its associated fascias is so frequently confusing, it is perhaps worthwhile to engage in a brief review so that we may have a fundamental concept of these structures.

Let us consider first a typical cervical vertebra. It will be noticed, among other details, that a cervical vertebra differs from those in other segments of the column in that the transverse processes present distinct anterior and posterior tubercles with a deep groove developed between these tubercles, which groove lodges the emerging trunk of a cervical nerve. We arbitrarily speak of the muscles attaching to the anterior tubercles and ventral surfaces of the bodies of the cervical vertebrae as the prevertebral muscles. They are, namely: the longus colli, longus capitis, rectus capitis anticus, rectus capitis lateralis, and scalenus anticus. This group is covered by a continuous muscle fascia extending from the anterior tubercle

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on one side to the anterior tubercle on the other, which we call the prevertebral fascia. Notice especially how the longus colli is attaching as low down as the third dorsal vertebra and is therefore in the superior mediastinum, and the scalenus anticus, the most lateral of this group, is attaching to the scalene tubercle on the first rib just medial to the subclavian artery and is therefore at the apex of the axilla. It can be seen how a Pott's abscess, if it remains localized beneath the prevertebral fascia, can dissect either downward into the superior mediastinum or laterally into the axilla.

We arbitrarily speak of the muscles attaching to the posterior tubercles as the lateral vertebral muscles, which are, namely: the scalenus medius, scalenus posticus, levator anguli scapulae and splenius cervicis. This group forms the floor of the posterior triangle and is covered by a continuous muscle fascia which is called the lateral extension of the prevertebral fascia. It extends from the anterior tubercles across the emerging trunks of the cervical nerves (remember the grooves between the anterior and posterior tubercles) surrounds the lateral vertebral muscles and attaches to the posterior tubercles. It can be seen how a localized infection beneath this fascia will present itself in the posterior triangle and can easily involve the emerging trunks of the cervical nerves, particularly those entering into the formation of the brachial plexus. It is also seen how such an infection would tend to be carried downward and laterally in the posterior triangle because of the fact that the scalenus medius is attaching laterally on the first rib and the levator anguli scapulae is going laterally and posteriorly to attach to the superior angle of the scapula.

Lastly, the postvertebral muscles are attaching in the deep groove between the posterior aspect of the transverse processes and the spinous processes and are covered by their own muscle fascia (post-vertebral fascia), but since otolaryngologists are not commonly called upon to operate in this region we can dispense with this group by its mere mention.

Lying immediately in front of the prevertebral muscles and prevertebral fascia is the visceral compartment of the neck consisting of the respiratory and digestive tracts in the midline and laterally the great vascular sheaths surrounded by a completely encircling and continuous fascia, the visceral fascia whose derivation and component parts shall be discussed shortly. This visceral compartment is separated from the prevertebral compartment by an extensive areolar space filled with lymphatics and which extends superiorly to the base of the skull inferiorly behind the esophagus

into the mediastinum and is limited laterally by the great vascular sheaths—this is the retropharyngeal space. It can be seen therefore, how a retropharyngeal abscess from whatever source; the nasopharynx, oropharynx, laryngeal pharynx, cervical esophagus or a Pott's abscess which has ruptured through the prevertebral fascia, can dissect downward and gain access to the mediastinum, but is limited in its lateral spread by the close application of the great vascular sheaths and their fascial pedicles to the transverse processes of the cervical vertebrae.

Let us turn our attention now to the derivation of the visceral fascia and its component parts and to the more superficial anatomy of the neck. As we dissect the neck from without inward, layer by layer, we recognize successively, skin, superficial layer of superficial fascia, and deep layer of the superficial fascia which is the platysma muscle. We come now to the deep cervical or vaginal fascia of the neck which is a completely enveloping fascia. This fascia starting posteriorly at the ligamentum nuchae splits to surround the trapezius forming its muscle fascia, jumps from the anterior border of the trapezius to the posterior border of the sternocleidomastoid forming the roof of the posterior triangle and therefore must be incised in surgical approaches in the posterior triangle, then splits around the sternocleidomastoid forming its muscle fascia. From the anterior border of the sternocleidomastoid this fascia sweeps forward to fuse with its fellow of the opposite side in the midline of the neck. In doing this it splits around the parotid gland above, forming the capsule for this gland and then attaches to the ramus, angle, and the entire inferior border of the mandible. Lower down it anchors to the hyoid bone. At the base of the neck we find it anchoring to the clavicle and sternum. Thus we see that the deep cervical fascia is a completely enveloping fascia from the ligamentum nuchae posteriorly to the midline of the neck anteriorly. Above the hyoid it is reflected upward as the muscle fascia of the suprahyoid group and splits around the submaxillary gland forming the capsule for this gland. It can be seen, therefore, that the entire digastric or submaxillary fossa can be exposed by simply cutting the fascia between the tendon of the digastric and the submaxillary gland and lifting the gland upward onto the face. We shall see the significance of this in the drainage of the pharyngomaxillary region.

Also above the hyoid bone we find that the deep cervical fascia is reflected from the anterior border of the sternocleidomastoid and mastoid process downward to the styloid process and stylohyoid

ligament developing the so-called stylo-mastoid membrane in which are incorporated the posterior belly of the digastric and the stylohyoid muscles. All vasculo-neural structures entering the parotid gland come in from behind this membrane, and therefore must pierce it to enter the gland. Thus we find the seventh cranial nerve and the external carotid artery with its accompanying veins piercing it to gain access to the gland, while lying just under cover of it is the sheath of the internal carotid artery and internal jugular vein ascending to the base of the skull. This membrane with its enclosed muscles is a prominent landmark and serves as an excellent guide in operative procedures in the region of the parotid fossa. From the styloid process the deep cervical fascia is reflected back up to the ramus and angle of the mandible as the stylo-mandibular membrane. No vasculo-neural structures pierce this membrane. We have thus developed between these two membranes a wedge shaped fossa which lodges the parotid gland whose anterior boundary, the stylo-mandibular membrane, separates us from the digastric fossa in front and, as we shall see later, from the pharyngomaxillary space above, which is in reality an upward continuation under cover of the ramus of the mandible of the digastric fossa.

Below the hyoid bone the deep cervical fascia splits into two layers. The first is carried down as the muscle fascia of the infrahyoid group and therefore to the posterior aspect of the sternum in front and to the superior border of the scapula infra laterally (by the omohyoid). The second layer is carried down on the visceral compartment as the visceral fascia. We have a space developed, therefore, in the midline between the infrahyoid muscles and the visceral fascia which is continuous with the superior mediastinum, and derives its importance by virtue of the fact that we are here in the pretracheal region and we may find in this space any of the great vessels found in the superior mediastinum proper (innominate artery, arch of aorta). The possibilities of such anomalies should be kept in mind in the surgical approach to the trachea.

It is seen then, that the visceral fascia is derived from the deep cervical fascia and we know that it is a completely enveloping fascia for the visceral compartment. That portion of it which is surrounding the respiratory and digestive tubes is called visceral fascia proper. That portion laterally surrounding the great vessels of the neck is the vascular fascia and the bridge of fascia between these two structures is called the alar fascia. This alar fascia is entirely nutritive in function as it carries the vasculo-neurolymphatic structures

back and forth between the vascular sheaths and visceral compartment. The great exchange of vessels takes place above the level of the upper border of the thyroid cartilage as it is at this point that we have the common carotid artery dividing into the external carotid (which supplies all the branches to the visceral compartment) and the internal carotid (which supplies none). From this level downward to the root of the neck normally we find no vasculo-neural structures crossing over in the alar fascia, and theoretically the neutral zone with respect to the alar fascia would extend from the upper border of the thyroid cartilage above to the base of the neck below. It will be remembered, however, that the inferior thyroid artery, arising from the first portion of the subclavian passes upward and medially behind the vascular sheath and alar fascia, making its arch at the level of the cricoid cartilage. Practically therefore, it can be seen that the neutral zone with respect to the alar fascia is between the upper border of the thyroid cartilage above and the cricoid cartilage below, and it is in this region that it is perhaps most advisable to approach the retropharyngeal space from the neck.

Making the skin incision along the anterior border of the sternocleidomastoid between these two levels we go through skin, superficial fascia, platysma and then incise the deep cervical fascia. This exposes the great vascular sheath just under cover of the anterior border of the sternocleidomastoid. Retracting the vascular sheath laterally and the visceral compartment medially we put the alar fascia on a stretch. We can now introduce a blunt hemostat through this fascia, not endangering any vessels or nerves, and gain access directly to the retropharyngeal space which can be explored with the finger for a considerable distance superiorly and inferiorly.

Let us turn our attention now to the great vascular sheath and see how we may most advantageously approach such vessels as the common carotid, external carotid and internal carotid arteries and the internal jugular vein. As far as the surface markings are concerned, the vascular sheath takes an oblique course upward in the neck from the sternoclavicular articulation below toward the mastoid process above lying just under cover of the anterior border of the sternocleidomastoid muscle. The anterior border of the sternocleidomastoid therefore is the structure with which the vascular sheath is most easily identified, and most approaches to the sheath are made along this border. A point worth keeping in mind at this juncture is the fact that occasionally we have a large vein connecting the common facial vein above with



the anterior jugular vein below, which courses along the anterior border of the sternocleidomastoid just beneath the deep cervical fascia. In all approaches made along this anterior border, therefore, it is well to proceed with caution upon reaching the deep cervical fascia.

The common carotid artery may be approached either above or below the cricoid level. One should remember that in approaching this vessel below the level of the cricoid we have one additional fascial layer to contend with, namely, the infrahyoid muscle fascia which is carried laterally by the omohyoid muscle between the vascular sheath and the sternocleidomastoid. An incision along the anterior border of the sternocleidomastoid whose center is opposite the cricoid cartilage will place us in position therefore, to ligate this vessel either above or below the omohyoid. Incising through skin, superficial fascia, platysma and deep cervical fascia, we retract the sternocleidomastoid laterally and expose the vascular sheath. It is to be remembered that the internal jugular vein lies lateral to the artery, overlaps it somewhat anteriorly and its tributaries such as the lingual, superior and middle thyroid veins, are passing across the common carotid artery to enter the vein. The vagus nerve is lying behind and between the artery and vein, and the descendens hypoglossi nerve is coursing down on the artery in the sheath to the cricoid level. These should be avoided.

The external and internal carotid arteries may be approached from a common incision as they are arising from the parent trunk opposite the upper border of the thyroid cartilage in most instances. An incision along the anterior border of the sternocleidomastoid whose center is opposite the upper border of the thyroid cartilage should place us exactly at the bifurcation of the common carotid artery. It should be kept in mind that the external carotid artery is lying medially and the internal carotid artery laterally, and that the former is giving rise to numerous branches while the latter has none in the neck. It is advisable to ligate as close to the bifurcation as possible. Again incising through the skin, superficial fascia, platysma and deep cervical fascia, we retract the sternocleidomastoid laterally and expose the vascular sheath. Large lymph glands as a rule are encountered lying along the sheath in this region. We shall see the large venous tributaries (superior thyroid, lingual and facial veins) coursing over the external and internal carotid arteries to enter the internal jugular vein. These will have to be differentiated from the artery and retracted or ligated. It is well to remember that the hypoglossal nerve when it leaves the sheath of the in-

ternal carotid artery at the hyoid level winds around the occipital artery and crosses the external carotid artery to enter the digastric fossa. We see the advisability, therefore, of staying close to the bifurcation and well below the hyoid level.

In ligating the internal carotid artery we again locate the bifurcation and the most lateral vessel, that vessel coursing with and overlapped by the internal jugular vein will be the internal carotid artery. Recall again that we have in the sheath of the internal carotid artery at this level the vagus nerve behind and between the artery and vein, and the descendens hypoglossi nerve coursing down on the vessel. These are to be avoided.

We may ligate the internal jugular vein through either a low approach at the root of the neck or a high approach at the hyoid level. The former approach is made along the posterior border of the sternocleidomastoid, whereas the latter is made along its anterior border. The accessibility of the vein in the low approach depends in large part upon the width of the sternocleidomastoid. If this muscle is narrow, we can readily approach the vein by a low incision along its posterior border, whereas it is best to resort to a muscle splitting incision if this muscle has unusual width. It should be remembered that we are approaching the sheath below the cricoid level and therefore have the omohyoid muscle and the infrahyoid muscle fascia interposed between the sternocleidomastoid and the vascular sheath.

It is frequently advisable to ligate the internal jugular vein above the point at which it receives the common facial vein. This vein commonly enters the internal jugular vein at the level of the hyoid bone. The incision for this high approach is made along the anterior border of the sternocleidomastoid so that its mid-point is opposite the hyoid bone. Going through the usual layers we expose the sheath of the internal carotid artery. One must guard against damaging the hypoglossal nerve which, at this level, is leaving the sheath between the internal carotid artery and internal jugular vein and is passing forward beneath the common facial vein.

We come now to the pharyngomaxillary or lateral pharyngeal space. This space lies between the internal pterygoid muscle laterally and the superior constrictor of the pharynx medially. It is limited anteriorly by the pterygomandibular raphe and posteriorly by the sheath of the internal carotid artery. It is in reality an upward continuation of the submaxillary fossa under cover of the ramus of the mandible. Posterolaterally it is separated from the parotid fossa by the stylomandibular membrane. This is an extremely important re-

lationship as we shall see shortly. When swelling and fluctuation appear in the neck at the angle of the jaw it becomes first a problem of differential diagnosis between involvement of the parotid fossa, which lies behind the stylomandibular membrane or of the pharyngomaxillary space which lies in front of it. Obviously our surgical approach would differ in the two conditions. Incisions for drainage of the pharyngomaxillary space should be placed in front of this membrane. If the abscess is pointing just at the angle we can gain access to the space by a simple skin incision along the inferior border of the mandible from the angle laterally to the point at which the external maxillary artery is crossing its inferior border medially. Having gone through skin, superficial fascia, platysma and deep cervical fascia we may now direct a blunt hemostat upward along the internal pterygoid muscle and establish free drainage in the area.

If the abscess is pointing lower down and therefore in the submaxillary fossa the incision should be made just above the hyoid bone paralleling the upper border of the central tendon of the digastric fossa and carried for a short distance upward and backward along the posterior belly of this muscle. Again, going through the usual layers we come down to the deep cervical fascia. On dividing this fascia between the central tendon and the submaxillary gland, the gland can be mobilized (recall that this fascia is forming the capsule for the gland). We are now in an excellent position to explore not only the pharyngomaxillary space above but the para-lingual spaces anteriorly as well.

#### Discussion

**Dr. Gordon F. Harkness, Davenport:** In considering a discussion of Dr. Scheldrup's presentation I fully realize my limitations. As I look back over my years of practice I have been particularly impressed by the few occasions when I have been confronted by deep suppurations in the neck. Mosher in 1929 called attention to the fact that "thrombosis of the internal jugular vein from tonsil infection takes its weekly toll under the guise of septicemia of unknown origin." I have not seen such cases. Perhaps they fall to the lot of the men in general practice and we have been negligent in not broadcasting such a clinical entity. I have seen few cases of mediastinitis. My experience with postpharyngeal abscesses has been fortunate in that incision through the pharyngeal mucosa has given practically universal satisfaction. I recall two protracted cases which were not seen until they had ruptured and were draining through the auditory canal. So with such a lack of material, and I judge many of you have had a similar experience, our practical ideas as to cervical anatomy become a bit hazy.

The anatomy that I was taught left me much be-

fuddled as to its practical application in suppurations of the neck. Fortunately most of the suppurations we see have to do with the breaking down of a more or less superficial lymph gland. We do not need very much anatomic knowledge to handle such cases. Patience, waiting until nature has broken down the tissues into an abscess with a surrounding protective wall; a small skin incision, and opening into the abscess cavity with a blunt instrument, and the patient recovers.

The fascias as we learned them did not help much; the trapezius and the sternomastoid inclosed in the superficial layer of the deep fascia; from this layer two processes, one posterior crossing over just in front of the vertebral column, the anterior of the processes, enveloping the thyroid gland, and meeting its fellow in front of the trachea; and then how these two processes together with fascia internal to the sternomastoid formed the vascular sheath. All this did not help much, as to applied anatomy. The fact that the cervical fascia is attached to the sternum clavicle and first rib, we understood as a barrier to opening the chest. To be sure pus beneath the superficial fascia could burrow into the axilla or reverse the process or if beneath the fascia just in front of the vertebra it could slip down to the posterior mediastinum, or beneath the fascia in the anterior part of the neck, or it could follow down to the anterior mediastinum. The triangles of the neck make beautiful anatomic demonstrations, but again there was something lacking in what we retained in our minds as to just how to apply this knowledge.

There has developed a newer anatomy which Dr. Scheldrup has given us. "Surgical landmarks by their very numbers become confusing." As otolaryngologists we can forget the posterior part of the neck. The sternomastoid muscle comes first. We can all comprehend its relation to the great vessels of the neck. Batson speaks of the connective tissues in the neck as capsular, areolar, and dense or perivascular fascias. Weintraub presents the picture much as Batson. The dense or pedicle fascias contain the blood vessels and nerves and they radiate out like a fan, forming the ribs. The other fascia or telae are likened to the webbing of the fan and contain no vessels. There is a potential space between the fascias and the anterior spinal muscles on each side. Likewise under the mucous membrane of the pharynx there is not one but two lateral spaces. The dense fascias limit infection, the areolar fascias develop suppuration. Mosher prefers to consider the fascias as but prolongations from the carotid sheath. He calls it the Lincoln Highway. At least I like to cling to the sternomastoid and the carotid sheath as sort of home base and work from there.

When should we work in the upper part of the neck, and when at the lower level? If we have a retropharyngeal condition, which has involved deeper and lower structures, and surgical interference is necessary as in a Pott's abscess, we first remember the space is bound above by the skull, below by the mediastinum, and laterally by the fascias of the great vascular trunks. Such abscesses do not go up to



localize. From where are we going to start our search for pus? In front or behind the principal landmarks, the sternomastoid and the great vascular sheath? Posteriorly and in the lower part of the course, the muscle and sheath being retracted forward. Vessels are avoided, the blunt dissection being carried forward on the scalmi muscles, and as Batson has stated, once within the space the gloved finger can ascend to the base of the skull or descend to the posterior mediastinum. When it comes to deep infections higher in the cervical region, the problem of an external approach which is bound to bring us within close proximity to large vessels and important nerves is really a formidable procedure.

Tissues inflamed and indurated offer a different problem than a cadaver demonstration. The pharyngomaxillary fossa is the area with which we are most concerned. The most common situation possibly is localized pus as a sequela of tonsillitis or following a tonsillectomy. If there is swelling and frank pus is suspected then the approach as advocated by Batson seems almost a "Godsend;" an incision behind the angle of the mandible, in front of the sternomastoid and parallel to it. This is carried through skin and capsular fascia. The parotid gland if it intrudes is displaced, and with dissecting scissors curved on the flat progress is made upward, inward and forward along the internal pterygoid muscle; opposite to which the abscess is opened. If, however, a thrombophlebitis is suspected, particularly in a causal relationship to a septicemia, then it seems to me an approach such as Mosher presented in 1929 is preferable. This as you know is a wide exposure by a T shaped incision. He stresses the superficial position of the hypoglossal nerve; the posterior belly of the digastric fossa as always covering the great vessels high in the neck; the completeness of the submaxillary fossa; the manner in which the hyoid bone by its muscular attachments divides the cervical region into upper and lower parts; the tip of the great cornu of the hyoid bone between the lingual and facial veins, the former above and the latter below; and the external carotid and carotid sheath externally. This submaxillary fossa approach also make accessible abscesses in the tongue and floor of the mouth.

When all is said and done we can thank Providence that we do not frequently encounter deep suppurations in the neck.

### THE SYSTEMIC MANAGEMENT OF CHILDREN WITH INFECTIONS OF THE NOSE, THROAT AND EAR\*

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Specialization inevitably circumscribes attention and focuses interest in a specific field of endeavor. In the management of the acute infections of the upper respiratory tract in children I

wish to emphasize the importance of consideration of the entire organism. It may appear superfluous to point out the systemic damage either concomitant with or subsequent to upper respiratory tract infections, but it is an all too common experience to find all of the attention and all of the treatment directed toward the throat or ear, and the organism as a whole completely ignored. This error is by no means confined to the otolaryngologist but is equally true of the general practitioner and the pediatrician.

The most common and the most serious error in the management of the sick infant or child is that he is considered a miniature adult and is accorded the same treatment as the adult. Proper management of acute infections in childhood presupposes an appreciation of the toxemia, an understanding of the metabolic disturbances and a knowledge of the complications peculiar to the age group. The starvation, the anhydremia, and the toxemia accompanying a mild pharyngitis jeopardizes the life of an infant.

The first principle in the care of the sick child is rest. The acutely ill child should, of course, be strictly confined to his bed. Restlessness should be controlled and sleep assured by hypnotics if necessary. Pain can be controlled by adequate doses of paregoric, codeine or morphine. However, it is in the subacute or chronic illness that one is particularly remiss in the instructions regarding rest. Any child who has a daily elevation of temperature with an associated tachycardia and fatigue should not be up and around. I am convinced that the practice of otolaryngologists in having parents drag a sick child to the office day after day to have an ear wiped out or to have the throat painted is definitely harmful to the child even though it is more convenient for the physician. Fatigue, anorexia, and irritability are as clear cut yardsticks of infection in childhood as the temperature and the leukocyte count. Conceding that the child with a persistent sinus infection or a cervical adenitis may not be critically ill he certainly will recover more promptly and subject his organism to less trauma if he is kept in bed. Resumption of activity should not depend on the cessation of temperature alone but upon an improved color, a quieter pulse, a better appetite and a happier child. I level this criticism upon the otolaryngologist, the child is considered well if the ear is dry or the sinus drained.

I cannot resist the temptation of pointing out the efficacy of a little psychology on the part of the practitioner or the specialist in the management of the sick child. The time and the effort expended in getting acquainted and some expla-

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nation of the procedure that is to follow will go far in stimulating the cooperation of the young patient. The psychic trauma resulting from injudicious and thoughtless "bull in the china shop" methods may cause more serious damage than the otitis media or the tonsillitis. If a diagnostic or therapeutic procedure is painful do not resort to deceit or falsehood if you wish to retain the confidence of the child. While I am speaking frankly I wish to point out another thing that is rather a tender subject with the practitioner. When a patient is referred to a specialist the referring physician is frequently ignored and forgotten, his counsel disregarded. The honest cooperation of an intelligent surgeon with a wise physician is a combination that is hard to beat.

The second fundamental principle in the treatment of the acutely ill child is the provision for an adequate fluid intake. It is in this phase of management that the physician who cares for only an occasional child is particularly remiss. In addition to the usual water requirement the sick patient must have an additional intake to compensate for the increased metabolism, the loss in vomitus, in stools, and in perspiration. Toxemia is best combated by an adequate fluid intake. The question arises as to how much fluid should be given. The only answer is enough, enough to prevent or to correct dehydration and to provide an adequate urinary output. The amount varies tremendously and depends on the degree of toxemia and the amount of fluid loss.

The oral administration can usually provide adequate liquid intake for a moderately ill child. However, a recalcitrant youngster with a sore throat may refuse all liquids and a young despot in the home may dictate his own therapy. It is a common experience to have the mother completely fail in the administration of liquids, but if the child is placed in the care of a good nurse or in a pediatric ward no difficulty is encountered in providing an adequate intake. The intake by mouth may be supplemented by proctoclysis but it is not a very successful procedure in children. The young child cannot retain the fluid and in the older child who is acutely ill it causes more discomfort than hypodermoclysis. In pediatric practice proctoclysis is commonly employed in the home in patients with repeated vomiting associated with throat infection. A five per cent glucose solution may be prepared by adding one tablespoon of Karo syrup to ten ounces of tap water, and may be administered by drip or by retention enema.

Pediatricians are convinced that the parenteral administration of fluids is the most useful thera-

peutic procedure in the pediatric armamentarium. Deprived of its use in the treatment of the acutely ill child we would feel as hopeless and as impotent as if we were deprived of antitoxin in the treatment of diphtheria. For some reason there has been a tendency to employ parenteral administration of fluids only as a last resort and only in extreme cases. It should be used to prevent severe dehydration and overwhelming toxemia, and not be deferred until dissolution is impending. The subcutaneous administration of isotonic solutions, saline, Ringer's solution, or Hartman's solution is not a formidable procedure. If given carefully it occasions little discomfort, and our patients make very little complaint. A small infant can be given 1,000 cubic centimeters of solution in a period of twelve hours. We have no hesitancy in repeating it day after day and I can recall patients who have been given hypodermoclysis daily for a month.

A rapid and extremely effective method of giving fluid is by the intraperitoneal route, a very common procedure in pediatric practice, particularly in enteritis associated with otitis media and mastoiditis in infancy. It is not a hazardous procedure if carried out with proper technic, exercising aseptic precautions and using only isotonic solutions.

The intravenous infusion of fluid is frequently as dramatic in its effect as is intubation in laryngeal obstruction. I recall particularly children with an acute pharyngitis associated with repeated vomiting or diarrhea who in twenty-four hours are seen in a critical condition, pale, restless, with sunken eyes, the skin and mucous membranes dry, the pulse rapid, the breathing hurried. Intravenous fluids will save the lives of these children; the other methods of administration are too slow.

There should be no hesitancy in giving intravenous fluids in anhydremia, in acidosis or alkalosis, in severe toxemia. In infants it is usually necessary to expose a vein or to insert the needle in the superior longitudinal sinus. We find that the use of the Luer-Kauffman syringe contributes to the ease of administration. Proper preparation of solutions and extreme care in the cleaning of glassware and tubing obviates reactions. From 20 to 25 cubic centimeters per kilogram of body weight may be safely administered, and it may be necessary to repeat the infusion several times daily.

In the administration of liquids one must not fail to incorporate the elements necessary for the maintenance of acid base balance, which constitutes the third objective in the management of the sick child. Glucose is given by mouth routinely



in all febrile patients to prevent ketosis and intravenous glucose is given to correct ketosis. Lactate-Ringer's solution is given subcutaneously, intraperitoneally or intravenously to restore and to maintain a normal relation of electrolytes. In most pediatric departments, lactate-Ringer's solution, with or without glucose, is the choice of solutions in parenteral administration, for it is not only antiketogenic but may be used selectively by the organism to correct an alkalosis. The intravenous administration of glucose in lactate-Ringer's solution is the most formidable weapon the physician possesses in his battle with infection in childhood.

In emphasizing the importance of parenteral fluids in the treatment of the acutely ill child one must not overlook the efficacy of blood transfusion. Blood is indicated primarily in prolonged infections with secondary anemia. However, the benefit of blood transfusion in the severe acute infections in childhood, particularly in infancy, is not adequately appreciated. Convalescent serum possesses real merit and should be used when available. However, if transfusion is to prove of any value it must be employed early and not be a final heroic gesture. Drugs play but little part in the therapy of infection in childhood. Polypharmacy may impress the layman but has very little influence on the course of the disease. Most of the infections in childhood are self limited and the patient may get well in spite of therapy. The practice of administering cathartics to sick children cannot be too heartily condemned. The old custom of giving castor oil dehydrates and frequently precipitates a diarrhea which makes a sick child even more ill. In the preoperative preparation of the patient let candy be substituted for castor oil. I question the wisdom of painting the throat when an acute infection is present. I believe that it accomplishes little, may do harm and is a painful and unpleasant experience for the child. The spraying of the nose or throat with an aromatic liquid may possess psychologic value but has doubtful therapeutic merit, and the use of oil in the nose may produce serious pulmonary complications.

Phenacetin or acetylsalicylic acid may be used in conjunction with hydrotherapy for the control of fever. Phenobarbital is a safe and effective hypnotic. Paregoric, codeine or morphine may be used in appropriate dosage for the relief of pain.

During the acute phase of an infection sweetened liquids are vastly more important than food. The sick infant has no appetite, the tolerance for food is lowered, and the forcing of food may not only occasion vomiting but precipitate a serious

diarrhea. In infants it is a wise precaution to weaken the formula or to change to buttermilk or an acidified formula. In prolonged infections in infancy, however, adequate provision must be made for the nutritional requirements, not only caloric, but a proper balance of the food constituents, including minerals and vitamins.

Feeding the older child presents both a psychologic and a physiologic problem. The anorexia accompanying infection taxes the practical psychology of the parent or nurse and demands an insistence and firmness which is usually impossible in an overwrought and an emotional mother. A diet high in calories and rich in carbohydrates should be given. Milk is an ideal food for the sick child but experience has demonstrated that it is not well tolerated, causing abdominal distention and discomfort. Buttermilk, on the other hand, is usually very well tolerated. Much better results are obtained if one adheres to the regular schedule of three meals a day. The intervals between meals may be used for the administration of liquids. During convalescence and in prolonged infection an adequate and a complete diet must not be neglected.

The use of vaccines and of foreign protein in acute infections has been of no benefit in our hands. The extravagant claims of certain pharmaceutical houses for the many products on the market should not be permitted to influence our therapy. Autogenous vaccines have been of some help in selected cases of sinus disease.

In the management of the child with an infection of the upper respiratory tract it must be remembered that it is perfectly possible for him to have pneumonia associated with some other condition. The vomiting and the abdominal pain accompanying an acute throat infection may be due to an acute appendicitis, to a pyelitis, to a pneumonia, or to an abdominal adenitis. The headache, the vomiting and the stiff neck found in a patient with otitis media may be caused by a right upper lobe pneumonia and not by a suppurative meningitis. When treating a cervical adenitis or a sinus disease which has followed an acute head or throat infection one must not overlook an acute hemorrhagic nephritis or a rheumatic carditis.

In conclusion may I again emphasize that the treatment of infections of the throat, nose and ear in children demands a consideration and a treatment of the entire organism, an integrated unit which is easily thrown out of balance by a disturbance in any of the integral parts. In the presence of infection the integrity of the organism is maintained by:

1. Rest in bed until the objective and subjective evidences of active infection have disappeared.

2. An adequate fluid intake to prevent dehydration and to combat toxemia.

3. The maintenance of a normal balance of electrolytes in the body fluids.

4. The transfusion of blood in anemia and in overwhelming infections.

5. The provision for an adequate and a balanced diet.

6. The intelligent use of drugs and the avoidance of polypharmacy.

#### Discussion

**Dr. Jack V. Treynor, Council Bluffs:** Those of us who have worked with Dr. L. W. Dean will remember his remark that a "competent otorhinolaryngologist is an internist or a pediatricist with otorhinolaryngological leanings." This remark has been brought home to me more perhaps than to some men working in our field because I have been a pediatricist. Logically all of these things that Dr. Kelly has mentioned should be second nature to every one of us. Unfortunately, that is not true and it is necessary for some one of Dr. Kelly's standing to bring these things home to us. I was struck with the rapidity of egress when Dr. Kopetzky had finished his address. Sometime in my experience I will have to deal with a chronic ear infection by radical mastoidectomy, but every day of my practice as a rhinolaryngologist I must deal with the sort of things Dr. Kelly has talked about. Therefore, I consider these things infinitely more important than all the theoretic knowledge you can possibly have in relation to the "chronicities" in ear infections.

Dr. Kelly has given us a list of the requisites in the handling of respiratory infections in children. He has mentioned rest, adequate fluid intake, maintenance of the acid base balance, and a list of drugs which he passes over a little more lightly, I believe, than is quite fair to some of these drugs. These things are certainly necessary to the general welfare of the youngster but also play a part in improving the condition of the respiratory tract. We know that rest increases the lumen of the airway by reducing congestion. An increased fluid intake aids markedly in the movement of secretions by causing increased production and liquefaction. We have repeatedly seen youngsters whose extreme dehydration caused a viscosity of secretion which gave the effect of mechanical obstruction. Adequate liquid intake alone has made the difference between spontaneous recovery and surgical intervention. The administration of alkalies, no matter what its effect on the general acid base balance, certainly improves the condition of the respiratory tract. The use of sodium bicarbonate and potassium citrate causes over-secretion of the mucous membrane and so dilutes secretion and decreases viscosity.

It is necessary to take issue with Dr. Kelly in regard to his feeling of the inadequacy of drugs. I think they do have a real place in the treatment of

respiratory infections, although there are certain drugs which should be most heartily condemned. Atropine and belladonna have no place in the treatment of respiratory infections. Opiates may be used only in that amount which will promote comfort without interfering with respiratory excursion and an effective cough reflex. However, ephedrine by its astringent and antispasmodic effect certainly has value. Most of its failures can be blamed on improper use. To be effective it must be instilled into the nose with the head in such a position as to deliver the drug to the upper nose in an amount adequate to diffusion to the middle and superior meatuses. Alkalies and iodides have value if used properly because of their effect on the viscosity of secretions. Infections of the lower airways will improve on the bettered ventilation and drainage brought about through the use of these two drugs. Although local antiseptics such as argyrol and neosilvol have, to my knowledge, no antiseptic action in the nose they do have the value of stimulating and thinning secretion, and from this standpoint may be used with justification.

If one thinks of this respiratory tract as a main airtube with many smaller communicating tracts and, believe as I do, that most of our persisting respiratory infections depend on failure of the smaller areas to drain and to ventilate, he evaluates any method of treatment on the basis of its ability to re-establish ventilation and drainage. From such a concept we gain knowledge of the proper approach, whether this approach be medical, or surgical, or a combination of both. We appreciate the need of search for the obstructed area, and choose without prejudice the proper means of removing that obstruction.

**Dr. James A. Downing, Des Moines:** I have had the privilege of working with Dr. Kelly, and I wish to speak particularly about one type of respiratory infection which gives us a considerable amount of grief. That is the acute streptococcic infection of the larynx with subglottic edema and tracheobronchitis.

We have been very agreeably surprised several times at the result obtained after putting these children in the hospital and getting them filled with fluids. In spite of the fact that Dr. Kelly does not believe much in soda, we have poked a little alkali into them, at times without his knowledge, and liquefied the secretion and slipped by without a tracheotomy. In the youngsters where it has been necessary to do a tracheotomy, it has been very gratifying to see the thinning down of the secretion and the small amount of plumbing that was necessary to keep the airway open.

Another thing I want to emphasize is that youngsters with a stridor and embarrassed breathing should never have opiates. If a youngster needs an opiate to sleep, he needs help. If fluids or an intubation will not do it, then he must have a tracheotomy before he wears out his heart muscle.

**Dr. Lee Forrest Hill, Des Moines:** Mr. Chairman, I want to rebut against these two nose and throat men who talked about alkalizing the system. I



wish they would explain to me the mechanism by which a little soda given by mouth will change the alkaline reaction of the body.

**Dr. Downing:** Dr. Kelly doesn't believe in it either.

**Dr. Hill:** I am speaking for Dr. Kelly. If you will stop to consider that the acid-base balance in the body fluids is maintained at a  $p^H$  7.4 by a very delicate mechanism and that if you change that over to  $p^H$  7, or  $p^H$  6.8, coma from acidosis develops. If you push it up to  $p^H$  7.8 or  $p^H$  8 alkalosis with convulsions occurs. How can a little soda alkalize the tissues of the body?

Seriously speaking, however, there is one other point that I would like to make about the management of children with infections. One cannot watch, over a long period of years, numbers of children coming in with this type of upper respiratory infection and that type, and not soon come to believe that nature has something to do with the youngsters getting well. I am speaking of the infections for which there is no specific therapy. One type of head infection will last three or four days and get well. In another type of child, the infection, with different bacteria, will last three or four weeks. Right now we are having an epidemic in which the infections are persistent and last a long time. At other times we have infections of very short duration. Repeatedly we see epidemics in which pathology in the ears is of very brief duration; a few days, and practically all get well. A few years ago we had an epidemic of streptococcal nose and throat infections in which mastoiditis occurred very frequently.

As we see it, and the point we wish to emphasize in caring for children with head infections, our job is to assist nature as much as we can in getting the children well. We think that bed rest and fluids and quietness over whatever length of time is necessary for nature to complete her job is the best therapy possible. I still feel that neither the nose and throat man nor the pediatrician has much to do with whether a child develops a mastoid or a sinus or not. I do feel that these children have their best chance of escaping complications if they can get the sort of treatment we have outlined.

### STUTTERING: RESEARCH FINDINGS AND THEIR THERAPEUTIC IMPLICATIONS\*

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About twelve years ago Dr. Samuel T. Orton, then director of the Psychopathic Hospital, and Dean Carl E. Seashore of the Graduate College proposed a program of research on stuttering at the State University of Iowa. Under the direction of Professor Lee Edward Travis, this program has gone forward with the help of the College of Medicine and many other departments of

the University, and from it there have come more than two hundred articles, monographs and books, the great majority of which have been reports of research. My own research has dealt mainly with the effect of stuttering upon the personality, and with the moment of stuttering as distinguished from stuttering as a long term condition. Also, much of my work has been concerned with experimentation along therapeutic lines. Of course, there is not time to tell you about all this work in any comprehensive way. What I propose to do is to tell you what may reasonably be regarded as the most important findings of the research and the most important implications of these findings as far as therapy is concerned.

I want to present four main research findings. First, stutterers as a group are evidently normal with respect to fundamental physical and mental characteristics, aside from the fact that they stutter. They appear to have essentially normal personalities, aside from such emotional and social maladjustment as is centered around their attitudes toward their speech defect. There are individual cases in which it may be possible to establish a significant relation between stuttering and such factors as birth injuries, injuries, especially head injuries and shock, subsequent to birth, febrile diseases, changes of handedness, malnutrition, and prolonged ill health involving such symptoms as irritability, nervousness, sleeplessness, enuresis, fatigue, etc. There is some question as to whether a well defined relation between these factors and stuttering has ever been established on a strictly scientific basis, but the evidence for a relation of some kind is fairly convincing in some cases.

Again, there is fairly convincing evidence that in some stutterers there is a condition which may be described as a relatively high degree of ambilaterality. That is to say, in such cases neither side of the body appears to be clearly dominant over the other side. This condition of ambilaterality might be suspected of significance in relation to stuttering because of the bilateral arrangement of the neuromuscular mechanisms employed in speech. Many stutterers, however, do not appear to be unusually unilateral, and some non-stutterers do appear to be so. Consequently, a final statement concerning this matter must await additional research.

While many stutterers seem to be unusually shy, emotional and introverted, investigation of fundamental personality characteristics has failed to differentiate stutterers from non-stutterers in any basic sense. People generally are not extremely well poised, extraverted and integrated, and stut-

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terers as a group measure up to standard quite satisfactorily in these respects. Such personality maladjustment as they present is largely a reaction to the frustrating and humiliating phases of the stuttering itself. Although it is widely believed that stutterers are psychoneurotic, I think it is reasonable to say that research findings generally have not supported this belief.

As far as intelligence is concerned, the average I. Q. and the range of I. Q.'s are practically identical for stutterers and non-stutterers. While there appears to be a tendency for stuttering to run in families, the actual inheritance of the disorder in any basic physical sense has never been established, to say nothing of the precise mechanics by which an hereditary tendency would operate. Most workers agree that more boys than girls are stutterers. We can only say that this sex difference has not been explained. In general, then, as far as research has so far shown, stutterers as a group appear to be fundamentally normal, aside from the fact that they stutter.

Second, the neurophysiologic researches of Professor Travis and his students have shown that stuttering is accompanied by profound physical disturbances. Breathing, heart action, reflex response latencies, eye movements, muscular tonus, and the coordination of various musculatures, especially those which are homologously paired, may all be affected during the moment of stuttering. The most recent studies, by Travis and Knott, have indicated that while generally the brain potentials (Berger rhythm) are not significantly changed during stuttering, there are occasional moments of stuttering during which the brain potentials undergo changes apparently representative of some kind of impairment of cortical integration. It has not been established, however, that these neurophysiologic phenomena are responsible for precipitation of stuttering, or that they are symptomatic of fundamental neuromuscular instability. What is clearly known is that these profound physical disturbances are what happen during moments of stuttering. They do not all occur during every such moment, some of them do not occur in all stutterers, but one or more of them are found as a rule during stuttering in most adult stutterers. The question as to what precipitates these disturbances is not to be answered, of course, in terms of the disturbances themselves. This point is to be emphasized, because of the temptation to assume that the disturbances are to be accounted for on the basis of a postulated basic instability, evidence for which are the disturbances themselves. This circular reasoning is, of course, inadmissible.

Third, psychologic research on stuttering has yielded one main finding, a very obvious finding, and a simple one, but apparently one of extremely great importance. This finding is that the stutterer does not want to stutter. Because he does not want to stutter, he indulges in a great variety of reactions; all the way from pretending he is deaf and dumb to pausing just a little longer than usual before syllables which he expects to cause him difficulty. We may call these avoidance reactions. When we have listed all the avoidance reactions of a given stutterer, we have listed practically all the overt symptoms of his stuttering. The stutterer even expects stuttering. Under laboratory conditions such that he has time to decide whether or not he expects to stutter in relation to each word he says, he seldom stutters unless he first expects to stutter. We have not yet had time to evaluate fully our findings in connection with this expectation, but we are coming to believe that the expectation of stuttering is merely the stutterer's awareness that he intends or is preparing himself to try to keep from stuttering. The expectation, therefore, would seem to have very little importance in and of itself. Its importance lies in the fact that through it we are able to study the operation of the desire to avoid stuttering.

The chief importance of the desire to avoid stuttering apparently lies in the fact that it exerts an inhibitory effect upon speech. The overt manifestations of this inhibitory effect are extremely varied, ranging from the sheer stoppage of the forward progress of speech, through repetition and prolongation of sounds and movements, circumlocutions, and the interjection of irrelevant sounds and words, to something that might be called psychologically induced silence. Of these, I believe the stoppage of the forward progress of speech to be of paramount importance. If you closely observe the stutterer's performance just at the instant a moment of stuttering is precipitated, you will see that he comes to a point in his speech where he has just completed a given movement and then fails to initiate the subsequent movement. Apparently we have only begun to appreciate the far-reaching implications of this simple fact. Its very simplicity and obviousness have probably insured it against thorough investigation.

After this stoppage has occurred any number of other things may happen, including the neurophysiologic disturbances which Travis and his students have recorded. Among the more conspicuous phenomena which follow the stoppage are the repetitions, prolongations, circumlocutions,



irrelevancies, and silent intervals mentioned above. These latter, with the possible exception of the silent intervals, may in a large measure be regarded as types of filibustering. By means of them the stutterer maintains a kind of communicative contact with his listeners, while at the same time he attempts to avoid what he considers to be the risk involved in going forward to subsequent speech movements, with which he expects to have difficulty. The conflict represented by such behavior is incredibly intense. It is apparently a conflict between the dynamic tendency to speak, on the one hand, and on the other hand the diametrically opposed dynamic tendency to inhibit speech in order to avoid the stuttering which is expected to occur if speech is allowed to go forward. We have already seen that probably the expectation of stuttering involved here is merely the stutterer's awareness that he is preparing to carry out particular avoidance reactions. The conflict, therefore, becomes a bewildering subtle and complicated one. It is small wonder that we have only begun to understand it. New and unusual investigative technics have had to be developed, but with such technics as we have devised we are making genuine progress toward an unravelling of this subtle phenomenon.

A fourth finding to which I want to call your attention is that stuttering occurs intermittently. There are moments of stuttering, interspersed among intervals of fluent speech. This means that there is no constant factor which is a sufficient cause of stuttering. The factor or factors which precipitate moments of stuttering must occur intermittently as attributes, or fluctuate effectively as variables. In the light of this evident truth, practically all current theories of stuttering are to be challenged, since they postulate sufficient and constant causal factors, thereby implying that stuttering is a continuous process. That it is not a continuous process should be obvious even to the casual observer, even were it not established on a research basis.

What I have reported as research findings imply certain therapeutic principles and methods. Therapy always lags behind diagnostic research, and the situation with regard to stuttering is no exception to this rule. I am sure that five years from now I should be able to present a much more adequate discussion of therapy, but, with a due amount of suspended judgment, I shall present what appear to be sound principles of therapy, as suggested by present knowledge.

First, the basic physical health of the stutterer is of great importance. The old principle of "a sound mind in a sound body" can be read to mean

also, within due limits, sound speech in a sound body. Physical hygiene is not the whole story in the treatment of stuttering, but without it any other form of therapy is seriously handicapped. In many cases, the organism is too susceptible to disintegration, and the individual is incapable of a sustained retraining effort, until general physical health has been established.

Second, a specific physical measure is that of establishing an adequate degree of unilateral dominance in motor function, especially with regard to bilaterally structured mechanisms. What this means in practical terms is that the individual's native handedness should be developed to a reasonably high degree. If a stutterer has unquestionably been changed from left to right handedness, the chances are good that he will be benefited by being changed back to left handedness. The best way I know of to determine whether a person's handedness has been changed is to obtain an adequate case history. No tests have been devised which really take the place of such a history. The teaching of left handed habits to one who is natively left handed will usually not be difficult. Certain pointers, especially with regard to handwriting, can be obtained from our clinic. I hardly have time to discuss them here, and besides the practitioner would want to have them in printed form.

Third, an objective, unemotional attitude toward the defect is conducive to more fluent speech. Such an attitude is conducive to the more efficient performance of any activity which demands a high degree of physical and psychologic integration. It is only logical to expect the stutterer to benefit from the clearing up of embarrassment and emotional panic. The constant humiliation of most stutterers is one of the most serious consequences of stuttering, not only because intrinsically it is demoralizing, but also because its effect on speech is disintegrative. The stutterer greatly needs a good sense of proportion concerning the importance of his stuttering as a personal characteristic. Such a sense of proportion is not only conducive to greater neurophysiologic equilibrium, but it also weakens the tendency to indulge in the avoidance reactions which make up such a large proportion of the overt stuttering symptoms. Moreover, it puts the stutterer in a much better condition for carrying out any retraining program.

Fourth, a more specific psychologic measure is that of giving the stutterer as much confidence in his speech mechanism as he is justified in assuming. If a stutterer is physically unable to produce certain words under certain conditions, he had best face that fact, refuse to apologize for it, and make

the best of it in a matter of fact way. However, it is foolish for him to assume physical inability where none exists, and to act as if he were unable to produce a given sound when as a matter of fact he is able to produce it. He might as well talk as fluently as he is fundamentally able to, and he should abolish any misconceptions he may have that stand in the way of his doing so. Before he refuses to attempt a speech sound or movement, he should be certain that his refusal is justified in the sense that the attempt would be sure to result in failure or difficulty. His time-worn habits of thinking and acting and his deeply-rooted fears are difficult to eliminate, but insofar as they are unjustified it is certainly sound therapy to eliminate them.

It is my opinion that they can be eliminated only through an effective demonstration of their fallacy. This will not be easy, because of the extreme difficulty of getting the stutterer to distinguish between genuine physical inability and the disabling effects of certain states of mind. I know of at least seven practical and more or less effective ways of attempting the necessary demonstration.

The first of these is very simple. It consists of pointing out to the stutterer the rather obvious implications of the fact that he produces many, usually the great majority, 80 to 95 per cent, of his sounds without stuttering.

Second, research findings may be legitimately presented to the stutterer in such a manner as to augment his fundamental confidence in his ability to speak.

Third, by the use of certain speech patterns most stutterers are able to speak without stuttering at all or with relatively little difficulty. In doing so, the stutterer tends to learn that he can use his speech mechanism efficiently at least in accordance with the prescribed patterns. For this demonstration, one may use whispering, singing, sing-song speech, speaking in time with a metronome or arm swing, reading in chorus with another person, even another stutterer, speaking slowly, speaking in a low voice, or high voice or loud voice, and in some cases speaking very fast. Many stutterers experience no speech difficulty when alone. It is my opinion that when used judiciously, such speech patterns contribute toward adequate demonstration of the stutterer's fundamental ability to speak. Otherwise, I do not regard them as having substantial therapeutic value.

Fourth, the stutterer can change, can in a large measure control, what we might call his stuttering pattern. That is, he can replace his characteristic facial grimaces or avoidance reactions with

quite different facial grimaces or avoidance reactions. Instead of repeating sounds, he can prolong them and vice versa. By exercising this ability, he should learn that he has much better control over his speech mechanism than he probably thought. By developing skill in the use of a given pattern, he can demonstrate to himself that he can always negotiate a speaking situation, that he can always do something with his speech mechanism, something that enables him to achieve the communication he desires. I regard it as sound therapy to instruct the stutterer in the skillful use of some stuttering pattern, so that he might resort to it whenever he is confronted by serious difficulty either because of actual physical inability to produce a given sound normally, or because of some disabling state of mind.

A fifth technic is that of controlled or systematic observation of the phenomena which occur immediately prior to and during the moment of stuttering. This can best be carried out by having the stutterer speak or read very slowly, with "slow motion." There are three main types of phenomena which the stutterer should study during this slow motion speech. First, he should decide before attempting each word whether or not he expects to stutter on the word. If he does, he should scrutinize the expectation with a view to gaining thorough knowledge of what he expects and why he expects it. Above all, he should ascertain whether the expectation is merely his awareness of his intentions to react in certain ways. Second, having decided that he does expect to stutter on a given word, the stutterer should attempt the word. If a stoppage occurs, he should maintain and study the posture assumed at the time the stoppage began. He should learn in this way just what he does at the instant a moment of stuttering is overtly precipitated. Third, having stopped and examined his reactions during the interval following the stop, he should attempt to proceed with the production of the rest of the word. If muscular tension or effort arises when he makes this attempt, he should try to determine the reasons for this tension, and the object of the effort. Is the effort directed toward executing the appropriate movements, or is it directed toward inhibiting these movements, perhaps by maintaining a posture already achieved?

I think that what the stutterer will tend to learn from this slow motion analysis is that much, perhaps most, and conceivably all, of his difficulty is due, not to fundamental physical inability to execute certain movements, but to certain disabling or inhibitory attitudes and intentions. A due appreciation of this should give him greater confi-



dence in his speech mechanism, as such, and thus weaken the relative influence of his inhibitory attitudes.

After the stutterer has acquired as much insight and as much confidence in his speaking ability as he can readily obtain from such essentially clinical demonstrations, two additional measures are in order. The first is that of providing the stutterer with a great deal of speaking experience in real, everyday speech situations. It should be the object of this experience to reënforce the learning begun in the clinical demonstrations. Therefore, in his everyday speech situations the stutterer should make judicious use of the various demonstration technics with which he has been made familiar, in order to further the development of as much confidence in his speech mechanism as he is justified in having. The second supplementary measure is that of suggestion, legitimate suggestion based on demonstrable facts as to the stutterer's speaking ability and his increasing mastery over speech. This measure is justified, and even necessitated, by the fact that the stutterer will use suggestion on himself anyway, and he may use the wrong kind. The suggestion used by the clinician is not meant to be dramatic. Its purpose should be merely the reënforcement of insight and gains actually achieved.

In closing, I should like to summarize briefly what I have said. I have considered four research findings of outstanding importance. These are that stutterers appear to be essentially normal aside from the fact that they stutter; during the moment of stuttering there are profound neurophysiologic disturbances; the stutterer possesses a desire not to stutter, which exercises an inhibitory effect on his speech; and stuttering is not a continuous process, but rather it occurs intermittently. These findings have certain implications for therapy, which have been discussed in connection with four therapeutic principles or procedures. These dealt with physical hygiene; development of adequate bilateral neuromuscular organization; development of mature, objective, unemotional attitudes toward the defect; and the development of as much confidence in the functional reliability of the speech mechanism as the stutterer is justified in assuming.

Fundamental research on stuttering has not been completed. There are still many open questions. I have presented a position with regard to theory and practice which I believe to be sound in the light of present knowledge.

#### Discussion

**Dr. Harry H. Lamb, Davenport:** Stuttering is a complex problem which rightfully belongs in the field

of the specialist in speech defects. However, as otolaryngologists, we are frequently called upon to examine and give advice to the stutterer. The examination is usually negative, but what of the advice? At best it is indifferent, because of our limited knowledge of this problem. We make a mental note that we must read up a bit on stuttering, but seldom get to it. A large amount of the productive work on stuttering has been done in the past decade. We may point with a great deal of pride to the speech clinic of our own State University as one of the outstanding organizations in the world for the study of speech defects. As Dr. Johnson points out, over two hundred contributions to the literature have come out of the State University of Iowa.

Nearly all complex problems when analyzed will reveal some key point. In this paper, Dr. Johnson's point that "the stutterer does not want to stutter" seems to me to be of prime importance. Most of the accompanying phenomena in the stoppage of the forward progress of speech are avoidance reactions. The stutterer hesitates to continue because of previous trouble with the word, or some of its component parts. Dr. Johnson's description of the mechanism of stuttering is very apt—that is, the stutterer "has just completed a given movement and then fails to initiate the subsequent movement."

As to the advice the otolaryngologist may give, it includes the following points:

1. If at all possible the patient should be placed in the hands of a specialist in speech disorders.
2. The patient is entitled to a thorough checkup of his general health.
3. A careful study of his native handedness and development of this to a high degree.
4. The patient should be given a simple explanation of the mechanics of stuttering, and a sympathetic effort made to build up his confidence in his ability to overcome his handicap.

**Dr. Gordon F. Harkness, Davenport:** I am not being facetious, and this is not personal, of course, but what effect does intoxication or alcohol have on the subject? I am thinking about the effect of alcohol on the nerve tracts.

**Dr. Johnson:** It seems to have varying effects, insofar as it disinhibits the individual, and it certainly does, you know. He talks much more freely. I would not recommend it, however. If he gets too much he stutters worse. I suppose the reason there is essentially physiologic.

**Dr. Harkness:** There is a lessening of inhibition?

**Dr. Johnson:** With the first few drinks, yes.

**Dr. Harkness:** Then, with the rhythm of your arm and everything, you have no difficulty at all. If the change of that rhythm is decreased slowly and slowly and slowly and slowly, is there any efficacy in treatment along that line?

**Dr. Johnson:** No, it is just a stunt. You can have them sing and whistle, read in a chorus with each other, and so on, but all of those patterns wear out, or else they are not the sort of thing that you would do in public. I suppose the reason they wear out is

that the stutterer's old habits of thinking and reacting creep into that pattern in speech in time.

**Dr. J. A. Thorson, Dubuque:** I would like to ask the question, if the speaker had read his paper instead of giving a speech like that, would that have had any effect? I mean, can a person who stutters read all right? Does reading make any difference?

**Dr. Johnson:** There, again, stutterers vary. Evidently it depends upon the experiences that the stutterer has had with reading versus speaking. I imagine I would have stuttered just about as much, but there are stutterers who do not stutter when they read, and there are others who stutter much more. It is an individual matter.

## THE FULL FREQUENCY AUDIOMETER\*

JAMES E. REEDER, M.D., Sioux City

In 1897 Seashore produced an audiometer which has been very much improved and is now known as the Iowa pitch-range audiometer. The advancement in radio tube development has given us an advantage and as a result you are all acquainted with the 2A audiometer as developed by the Western Electric Company. This is a fixed frequency instrument.

To determine conversational voice loss with the 2A audiometer we take the frequencies of 512, 1024, and 2048; the average is taken times 0.8. This is arrived at on the basis that a complete loss of serviceable hearing is 125 DB. The percentage loss is relative if we take into consideration the harmonics in the high tone range. You will observe that the average patient shows a more impaired conversational voice loss where there is a distinct loss in the high tone range impinging upon the conversational voice field where there is a 25 to 35 DB loss in the conversational voice field of, to, and including 2048 frequency. Apparently the harmonics in this field are picked up in the high tone range providing the intensity is sufficient in DB output to stimulate the harmonics in the higher frequency range.

The Royal Society of Medicine Committee on Hearing Tests states that the audiometer, while scientifically accurate fails in their application to clinical otology in that their results differ from those obtained with tuning forks. This committee points out that the telephone receiver makes a resonator out of the meatus and at the same time presses on the cartilage, but I do not agree with this statement.

There has been opposition to the audiometer since its very conception. I wish to show the advantages of a full frequency audiometer. You cannot only be sure of your percentage loss in con-

versational voice but you can map out the entire field in greater detail and by changing the intensity output you can magnify the island losses in the same manner as you map out scotoma in the visual field. One advantage to be considered is a complete quantitative test can be carried out with the per cent of hearing loss in DB recorded. Another matter of no little importance is that the personal element on the part of the examiner is very largely eliminated.

### SUMMARY

1. Loss percentage of conversational voice range.
2. Island loss determined.
3. Personal question eliminated on part of examiner.
4. Can more intelligently advise patient of the type of hearing device required.

## METHODS OF DIAGNOSIS AND TREATMENT IN ALLERGIC DISEASE\*

JULIA COLE, M.D., Iowa City

In this paper I shall confine myself to two groups of allergic disease; first, contact dermatitis; and second, the familial or atopic group.

Contact dermatitis, also generally called dermatitis venenta, has been known to clinicians for a great many years, but the frequency of occurrence and the importance of this type of allergic condition are matters of rather recent recognition. One reads that in some industrial centers contact dermatitis is the most frequent cause of disability calling for compensation insurance. In this part of the country it may be of less moment, but even here one sees many cases. Probably the best known instance of contact dermatitis is ivy poisoning and it may be taken as an example of others. Here, of course, the dermatitis is the result of contact with a plant and the lesions appear chiefly on exposed surfaces. These lesions consist of vesicles of varying size on an erythematous base and the chief subjective symptom is itching. There is no familial tendency, no hereditary element, nor do individuals who are subject to ivy poisoning tend to have conditions belonging to the atopic class, such as hay fever and asthma.

It would be impossible to enumerate all of the substances which have been described as causing contact dermatitis. I can only indicate some general groups as follows:

1. Plants. The most common offenders probably are ivy, oak and ragweed.
2. Cosmetics.

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3. Animal products such as furs.
4. Fabrics of all kinds.
5. Metals.
6. Chemicals in household and industrial use, etc.

In making a diagnosis of contact dermatitis, the first concern is the clinical diagnosis, and the second the attempt to determine the etiologic factor in a given case. In making a clinical diagnosis it is important to get a clear idea of the nature and location of the original lesion. Often when the doctor first sees the patient, the lesion may have been so altered by scratching, application of ointments or perhaps by secondary infection that a diagnosis is very difficult. Sometimes the lesion which we first see is in fact contact dermatitis, but is due to application of ointments to an entirely different type of original lesion, one which has become overshadowed by the contact dermatitis. It is important, then, to determine whether the lesion as we see it resembles closely the original one.

Clinically, contact dermatitis has to be differentiated chiefly from atopic eczema and seborrheic dermatitis. The typical lesion of contact dermatitis, as I have said, is a vesicular one on an erythematous base and the presence of such a lesion in itself is strong evidence of the diagnosis. However, the lesions may become papular, weeping, lichenified, etc., as in atopic eczema and seborrheic dermatitis. The distribution may help greatly in differentiation. In atopic dermatitis the lesions are likely to be on the flexor surfaces of the arms or legs, on the neck, and behind the ears. In seborrheic dermatitis the lesions commonly are on the scalp, near the hair line or in other locations where sebaceous glands are numerous. In contact dermatitis the location often suggests immediately the possibility of contact etiology, as in lesions under a metal wrist watch band or in the cosmetic area, etc. Family and personal histories may also help. A family or personal history of atopic disease (asthma, hay fever, etc.) suggests that the skin lesion may be atopic eczema. Sometimes there are personal and family histories of seborrheic conditions, such as oily skin, acne, etc., which will point to seborrheic dermatitis.

If the clinical diagnosis of contact dermatitis has been made, then we are interested in determining specific etiology. Here careful history taking and minute observation on the part of both physician and patient probably are the most important factors. The type of information wanted is as follows: Conditions under which the first lesions appeared. What time of year was it? Had there been any immediately preceding change in occupa-

tion, living quarters, clothing, etc.? The location of the original and subsequent lesions. Has there been any seasonal variation? If so, does it suggest relationship to plants or to occupational changes?

From questions such as these, information may be secured which points definitely to certain possible etiologic factors. If not, a more minute inquiry must be made into materials used in cosmetics, shaving and household cleaning; new clothing, furniture, animals in the house, plants in and around the house, occupational contacts, etc. History taking alone plus trial elimination of suspected substances may clinch the specific diagnosis. A further aid to diagnosis is given, of course, by the patch test.

The patch test probably has proved of more value in dermatology than has any other type of skin test. It is simple to apply and requires no special equipment. If possible, some of the suspected substance is put into solution and then a small piece of blotting paper or cloth is saturated with it and placed next to the intact skin. The back is a convenient location for testing. A covering of gutta percha or similar material is put over the small patch and the whole held to the skin with adhesive. If the suspected substance is something like leather or wool or some other insoluble, a small sample is moistened and placed on the skin. The patch is left on at least twenty-four hours unless the patient complains of burning or itching requiring earlier removal. A positive reaction consists of a reproduction of the original type of lesion, namely, a vesicular eruption on an erythematous base. Sometimes such a reaction is delayed twenty-four hours or more after the removal of the patch.

Let us take an example and suppose that we have a patient who gets a dermatitis on his hands and forearms and perhaps on his ankles above his shoe tops every fall. The lesions are vesicular and itch. The seasonal incidence suggests a plant and the fall of the year suggests ragweed. If this is indeed a contact dermatitis due to a plant, a scratch or intradermal test with the pollen protein will be of no help. In plant contact dermatitis, sensitivity is directed to the vegetable oil and not to the pollen protein. A patch test, however, can be done with a portion of leaf or with raw pollen.

To date, treatment of contact dermatitis is largely a matter of avoidance of the offending substance. This means a change of occupation for some patients, for others merely a change in powder or soap, and for others measures to avoid exposure such as wearing gloves at work. In addition to avoidance, in the case of plant dermatitis, injections of the vegetable oils have been quite

successful, both therapeutically and prophylactically. Oil suspensions of many of these plant products can now be secured and weekly intramuscular injections of 0.5 cubic centimeters of these extracts may clear up severe cases or prevent repeated development of symptoms.

The familial or atopic group includes as its most important members probably asthma, hay fever, and perennial rhinitis, but it also includes some infantile and adult eczema and some urticaria, migraine, and angioneurotic edema. Characteristics of this group of diseases are:

1. A marked familial trend. Inheritance of specific diseases is not necessarily observed, but rather a tendency to develop any one of the diseases in the group.

2. Individual patients often have more than one of the diseases in the group during a lifetime. Thus, a child who has infantile eczema may later have hay fever or asthma.

3. The age of onset tends to be early, usually in childhood or in early adult life and there is a tendency toward spontaneous improvement or cure in middle life.

4. Blood or tissue eosinophilia is commonly observed.

5. There is a marked tendency to the development of protein sensitivity as shown by positive skin tests.

Here again, as in contact dermatitis, there are two diagnostic problems; first, clinical diagnosis; and second, specific diagnosis or determination of etiology. Discussion of clinical diagnosis cannot be made here except to emphasize its fundamental importance. Too many people are subjected to elaborate allergic studies on the basis of a hasty, perhaps mistaken diagnosis of asthma, migraine, etc.

Once the clinical diagnosis is established, then an attempt must be made to determine specific etiology unless the patient is to be treated only symptomatically. An etiologic diagnosis may be very hard or very easy. I have said that atopic patients as a whole tend to show protein sensitivity. Is protein sensitivity, then, always the etiologic basis for their troubles? Some workers seem to proceed on this assumption, but it has never been proved. It is true that in strict seasonal rhinitis or hay fever the precipitating factor as far as we know is always a pollen. It is also true that many asthmatics have sensitivities to foods or inhalants and the same is true of perennial rhinitis, atopic eczema, migraine, etc. However, there are many cases of asthma, eczema, mi-

graine, etc., in which protein sensitivity cannot be proved. Perhaps our methods of diagnosing protein sensitivity are inadequate or perhaps other etiologic factors operate in this group of diseases. At present the latter explanation seems the more probable.

The first step in an etiologic diagnosis is a careful history. Taking a case of asthma as an example we must determine the following points: At what age did it start, at what time of year? Was there any preceding physical or mental disturbance, any dietary or environment change? What has been the subsequent history? Are the symptoms intermittent or more or less constant? If intermittent, does the incidence suggest a seasonal or occupational factor? Does the patient himself suspect as precipitating factors any foods, inhalants, infections, fatigue, nervousness, emotional upsets, etc.? After the original history has been taken, observation by both the patient and the doctor should be directed along the lines suggested by the history. A patient who is made aware of possibilities often will begin to make important observation in regard to the factors which precipitate attacks.

After the history a careful physical examination is indicated. Various physical abnormalities may operate in atopic manifestations, not necessarily as primary etiologic factors but often as contributory ones. Also foci of infection, especially in the upper respiratory tract should be looked for. There is still disagreement in the field of allergy as to whether infectious foci produce manifestations, such as asthma, because of the sensitivity of some patients to bacterial protein or because of local irritation and tissue changes. Whichever is true, there is no doubt but that infection plays the chief rôle in some cases of atopic disease, especially bronchial asthma.

Sometimes with careful history and physical examination alone one may have very definite ideas of etiologic possibilities which can be investigated. Further aids to specific diagnosis are afforded, of course, by skin tests and by elimination regimes. Physicians are probably less enthusiastic now than they were two or three years ago about skin tests. Perhaps this is because too much was expected of them. Because of their great usefulness in some cases they were expected to point unerringly to the etiology in all cases. Now it is realized that skin tests are far from infallible. They are, however, a definite aid to diagnosis.

Skin tests are performed by two methods, the scratch and the intradermal. Scratch tests have the advantage of greater simplicity and carry per-



haps less danger of provoking general reactions. Intradermal tests are more sensitive. In either case, a positive reaction consists in the development of a wheal, surrounded by an area of erythema. A positive reaction does not prove clinical sensitivity to the test substance and a negative reaction does not disprove it. I have spoken of the question of sensitivity to bacterial proteins. There are some workers who think that there is such sensitivity and that it can be demonstrated by intradermal skin tests with bacterial vaccines. To date there is no definite proof of this viewpoint.

Whether or not skin tests are available, eliminative methods furnish an aid to diagnosis. By this I mean careful trial elimination from the diet or from the environment of suspected foods or inhalants. The most important point to emphasize in regard to elimination is the necessity of complete elimination, which requires the patient's understanding and cooperation.

Whatever disorder the patient presents, be it perennial rhinitis, asthma, eczema or any of the conditions suspected of belonging to the atopic group, diagnosis, I think, must be along the lines outlined above: first a clinical diagnosis, then a specific one based on history, physical examination plus possibly elimination regimes and skin tests.

Treatment in atopic diseases is of two general sorts; first, symptomatic; and second, that directed at underlying etiology. Of symptomatic treatment I shall not say much. Each one of these atopic conditions is treated by a vast number of remedies, their very number testifying to their inherent inadequacy. Treatment directed at underlying etiology is not successful in 100 per cent of the cases nor in 75 per cent, perhaps not always in 50 per cent, but it affords the most hopeful approach to these diseases which we have.

In the case of sensitivity to foods or inhalants there are two general courses open; first, avoidance of the offending substance; and second, efforts to decrease sensitivity. If it is possible, the first is probably the more successful. The best results with attempts to decrease sensitivity, the so-called "desensitization" are found in the treatment of hay fever with pollen extracts.

Where the fundamental etiologic factor is believed to be infection, appropriate treatment of that infection is indicated. The value of autogenous vaccines in such cases is not established, but good results are claimed by some. The importance of fatigue, psychic factors, etc., should not be overlooked and when they are present as precipitating forces, they should be treated.

## ALLERGIC MANIFESTATIONS IN GENERAL PRACTICE\*

ELMER G. SENTY, M.D., Davenport

There are certain clinical phenomena that are generally accepted by most modern clinicians as being allergic in origin. During recent years other disease syndromes have been classified as being on an allergic basis, so that today about nine per cent of our population are said to be so affected. Allergy may be described as a hypersensitivity to a substance which is usually innocuous to most individuals and in which there is a tendency to hereditary transmission following Mendel's law. The literature describing family trees gives ample proof of the interchangeability of various allergic diseases. Thus a father or mother with asthma may beget children with a tendency to develop asthma or hay fever, or a father suffering with migraine may sire children with a tendency to develop migraine, asthma, hay fever, eczema or urticaria, in fact, any combination is possible and even probable. The past twenty years have been characterized by rapid advancement in our knowledge of allergy, so that today even though rather specialized, this field has become of tremendous importance and merits the attention of the general practitioner who is most certain to meet with allergic problems in his routine practice.

We now offer that hay fever, most cases of asthma, and many cases of eczema, urticaria, migraine and perennial hay fever are easily explained on an allergic basis. If we accept this premise, then it would appear proper that we consider allergy as the possible precipitating factor in such cases in which we can obtain a definite allergic background, and in which a careful examination reveals no organic cause accounting for the patient's complaint. There will naturally be many failures, but there will be more brilliant and startling successes. We must, however, approach this subject with a very conservative attitude as some allergists would have us believe that most diseases are on an allergic basis, and particularly so if the family history discloses any allergic taint. On the other hand, it is well to be "allergy conscious" or "allergy suspicious" when dealing with diagnostic problems. Only by maintaining this attitude can we expect to make progress in this field or learn to evaluate the baffling clinical findings. Let us consider some of the allergic diseases most frequently encountered in general practice.

### ECZEMA

Pediatricians and dermatologists have come to recognize that a large proportion of infantile

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eczemas cannot be cured with tar ointment or the manipulation of the fat or starch in the diet alone because their basis is a sensitivity to certain foods. These foods may be found in the child's diet, but in many instances the sensitivity is so marked that the allergic protein is transmitted in the mother's or cow's milk. While eczema is most commonly found in the infant of nursing age and usually has a tendency to disappear during the next few years, it may persist even to adult age. In infants, the eczema is usually localized on the face, but it may be generalized. It is of the moist or dry type. In older children the most common sites are the flexor surfaces of the elbows and knees and on the forehead, and lesions in these areas are almost pathognomonic of allergic eczema.

As would be expected, the chief offenders are those foods most commonly found in the normal daily diet; namely, wheat, eggs, milk or cereals. However, as the diet is increased, testing must be done to determine new sensitivities. Contrary to our general conception, orange juice often plays a prominent part in the production of infantile eczemas and there are many cases on record in which cod liver oil produced eczema. The cure of eczema is often a rather long procedure and usually requires many months, as well as a modicum of patience on the part of the physician, as well as the mother. However, it is well worth attempting, as it must be remembered that about 50 per cent of these children will eventually develop asthma if the offending foods or substances are not eliminated. There are external causes active in the production of eczemas, and for this reason contact dermatitis should not be confused with allergic eczema. This condition is produced by external irritants such as ragweed, poison ivy, primrose, novocaine, cocaine, morphine derivatives, silk, wool, furs, dyes and certain drugs. Skin tests, that is the scratch or intradermal tests, are almost uniformly unsuccessful. However, by the judicious use of the "patch test" the exciting substance can usually be found.

#### *Case Reports*

B. M. B., eleven months of age. At two months of age he developed an extensive vesicular eruption on the face, and at ten months of age asthmatic attacks of increasing severity. Skin testing showed him sensitive to the following proteins: milk, 3+; goosefeathers, 3+; oranges, 2+; and cocoa, 1+. These protein substances were removed from his diet with relief of eczema and asthma. Six months later the eczema returned. The mother denied giving the baby cocoa or oranges, but confessed that the child was receiving ice cream cones during the hot weather. The eczema again

disappeared with the exclusion of ice cream. This case illustrates a very common picture; namely, eczema in an infant followed by or associated with asthma.

Miss A. S., thirty years of age. This young nurse developed a papulovesicular eczema involving the eyelids, face and neck only when on nursing duty. She suspected the starch or bleaching solution used by the laundry. Patch tests using these solutions were negative. After trying many substances, morphine and codeine were used and vesiculation, redness and itching developed within a few hours. The use of rubber gloves when using morphine or codeine, and their immediate removal afterwards, has completely eliminated this annoying dermatitis and allowed this young lady to continue on active duty.

#### ASTHMA

Asthma is frequently encountered in general practice. It is a serious disease, one which is incapacitating and often interferes with individuals carrying out their chosen occupations. If not eliminated, this disease frequently terminates in emphysema in later life, a condition in which very little can be done. Asthmatic attacks are usually caused by foods in infants and children under three or four years of age. In later years foods usually play a secondary rôle, at which time danders and other irritants become the chief exciting causes. The onset of asthma after middle age is usually explained on an infectious or cardiac basis.

Allergic individuals who develop asthma frequently become sensitive to substances to which they are most frequently exposed. Consequently, a farmer may become sensitive to horse or cattle dander, a housewife to flour, orris root or cat hair, while a poultryman may become sensitive to feathers. Frequently secondary factors such as temperature changes, fumes from coal fires, etc., together with the allergic substances will bring on an attack. Dust, such as house dust, and that from books and clothes, is extremely irritating and is prone to produce asthma. Pyrethrum as found in various insecticides may bring on paroxysms. Sinus disease and nasal polyps are frequently secondary factors but at times seem to be the only explanation. Wheat, milk and eggs are the most common foods causing asthma in children, but in eliminating asthma, careful examination for other irritants must be made. In infants it is important to determine whether any foods eaten by the mother are at fault. Frequently it requires the combinations of more than one of the offending foods to bring on an asthmatic attack. Skin tests are quite satisfactory in deter-



mining the foods responsible, but at times test diets are needed. Elimination of the offending foods or danders frequently frees the patient from attacks of asthma, but in other instances active desensitization is necessary.

#### *Case Report*

L. F. F., twelve years of age. This child had had asthmatic attacks since she was eight years of age, coming on frequently and only at night. Tests were negative except for feathers. Covering the pillows with stork sheeting resulted in complete freedom from asthmatic attacks. This case demonstrates allergic asthma, apparently due to but one substance. There is no reason, however, why this child should not become sensitive to other substances in the future. Cases commonly begin with eczema in infancy, then develop asthma which may persist for ten or twelve years, only to be followed by migraine, each condition being produced by different proteins.

#### HAY FEVER

Hay fever affects the lives of two to three per cent of our population. We have rapidly changed our viewpoint concerning this disease, and we have come to the conclusion that it is a much more important affliction than had formerly been conceded. Hay fever is characterized by itching of the nose, ears, and roof of the mouth, and is usually associated with coryza, lacrimation and nasal congestion. It is generally conceded to be due to a specific pollen, one that is wind pollinated, and the disease usually terminates with a killing frost. A large percentage of hay fever sufferers are also sensitive to certain foods as well as to specific danders or dust, so that successful treatment necessitates attention to all of the above factors.

We are accustomed to thinking of hay fever in terms of fall or ragweed hay fever, but there are many cases of hay fever produced by the pollen of trees in the spring, by grasses in the spring and summer, and by other weeds in the fall. Many patients believe that their symptoms are due to flowers, others blame the golden rod. It is, however, definitely known that these insect pollinated plants are seldom causes of hay fever, and then only when these plants are used for decorative purposes. Today careful and vigorous treatment carried on up to and through the season results in a high percentage of satisfactory relief during the season, and in many permanent cures when carried on for several seasons. Treatment begun during the season is frequently of marked benefit, daily, small doses being given; however, pre-seasonal or perennial treatments have proved more satisfactory, each method having its proponents.

Finally, it must be always remembered that at least 50 per cent and possibly 60 per cent of all hay fever patients sooner or later develop asthma, and, for this reason if for no other, it is important that every effort be made to treat these cases in order to prevent this serious complication.

#### *Case Report*

Mrs. D. F. K., twenty-nine years of age. Classical symptoms of hay fever begin during the latter part of May or early June and cease during July or August. Symptoms have been present for three years. Skin tests showed marked reactions to red top and bluegrass. Careful desensitization was carried out up to and through the season with complete relief of symptoms. No further treatments have been given and there has been no recurrence of hay fever. This case illustrates hay fever due to grasses. It is very seldom, however, that one season's treatment eliminates the complaint.

#### MIGRAINE

Migraine, commonly called "sick headache," has been found to be interchangeable in linkage with asthma and hay fever. This finding is very suggestive evidence that asthma, hay fever and migraine have a similar etiologic basis, namely, allergic. There are many factors concerned in the production of the migraine type of headache, but usually before complete relief or cure is accomplished, the elimination of a certain food or foods is necessary in a fairly large proportion of the cases. There are certain types of headaches which are not considered to be allergic, in which the elimination of certain foods likewise produces excellent results. In addition there are those headaches produced by sensitivity to substances, causing congestion in the nasal passage with resultant stoppage of normal drainage and consequent headaches. These factors must all be considered in arriving at the primary causes of headaches. Skin tests are a valuable aid in determining which foods are precipitating causes, but frequently the use of test or elimination diets are necessary to determine which foods must be excluded. Occasionally the elimination of such incriminated foods over a period of time results in the development of a new tolerance to at least small quantities of such foods. Likewise, there sometimes develops a sensitivity to new foods that formerly apparently were not factors. For this reason it is advisable to make future tests if headaches are not relieved, or if they again appear after a period of freedom. There is undoubtedly much work to be done before we can write the final chapter on migraine, but the treatment of

this condition by the elimination of specific foods offers much.

#### *Case Report*

H. J., thirty-five years of age. Migraine developed when the patient was fourteen years of age, gradually growing worse so as to make teaching impossible for a few days with each attack. Skin tests were positive to the following foods: peas, tomatoes, string beans, rice, coffee, cocoa and beef. Exclusion of these foods relieved the headaches and by additions of some of the foods to the diet, it was definitely proved that beef or chocolate caused the migraine.

#### URTICARIA

Giant or small urticarial lesions with a tendency toward frequent recurrence are thought by many to have an allergic background. To this group angioneurotic edema with a special predilection for the eyelids, lips, ear, tongue and larynx should be added. The hereditary factors vary greatly according to different authorities, but undoubtedly heredity plays a very positive rôle. It is common knowledge that certain foods, if eaten in sufficient quantities, will produce hives in some individuals. It is not generally appreciated, however, that any food and frequently those not suspected, are the exciting agents. One would be prone to believe that in this condition the offending foods would be easily discovered, but difficulties are probably more frequently encountered here than in many of the other allergic manifestations. When skin reactions are not successful, elimination diets are of value in diagnosis. Urticarial lesions are also produced in some individuals by the ingestion of certain drugs, especially quinine, aspirin or atropine. There are also many instances of urticaria due to other allergens such as feathers or orris root, while in rare cases pollens may be the exciting factor. Nervous states, fatigue, toxic or infectious conditions, or even heat or cold may play an important part. Every effort should be made to determine the basis for these attacks.

#### PERENNIAL HAY FEVER

We are all well acquainted with the individual who uses ten or fifteen handkerchiefs daily and who complains of itching of the nose, eyes, and the roof of the mouth, together with nasal congestion. He is the perennial hay fever patient and is many times considered to be suffering with nasal disease. In fact, in many instances he has most of the symptoms of sinus disease, and nasal polyps are frequently encountered. The nasal secretions contain many eosinophiles, and this finding is quite characteristic of the disease.

About 25 per cent of these patients suffer with asthma. The true allergic background is less frequently found in this disease, and it is in such cases that treatment is least successful. In perennial hay fever, orris root is probably the most common offending substance. It is the common ingredient of face powders, bath salts, body powders, soaps, and cheaper perfumes. It is made from the root of the Iris, and its use is to fix and slowly diffuse the perfume used in these cosmetics. The use of allergic face powder, or the desensitization against orris root is very successful. Feathers are frequent offenders, as are the hair and dander from animals. Food sensitivity is by no means an unusual cause and is often accompanied by other manifestations of food allergy. A complete allergic examination should be made in all cases in which treatment of sinusitis or other nasal pathology has been unsuccessful.

#### POSSIBLE ALLERGIC CONDITIONS

As progress in allergic investigation has gone forward, new concepts explaining certain disease syndromes have developed. Today many cases of arthritis, especially intermittent hydro-arthroses have been explained on the basis of chronic food allergy and startling cures have been reported. Vernal conjunctivitis is thought by many to be due to hypersensitivity to pollens, dusts or foods and the elimination of these irritants has been generally successful in cases in which the tests were positive. Certain cases of bladder irritability associated with urinary frequency, urgency, burning or pain have been found to be associated with food sensitivity. This factor should always be considered in cases in which no pathologic findings can be found to explain the condition. Chronic or recurrent attacks of abdominal cramps, diarrhea or periods of spastic constipation should be suspected as being possibly of allergic origin, and particularly so if an allergic family history is obtained or when urticaria or canker sores are present. Many patients have been operated upon for chronic cholecystitis, appendicitis or peptic ulcer in whom no pathology to explain the diagnosis was found and whose symptoms were later satisfactorily explained on an allergic basis.

Recently certain types of Meniere's syndrome have been relieved by the administration of ephedrine or adrenalin, calling attention to the fact that this disease may have an allergic background.

#### SUMMARY

The fact that certain individuals are born with a tendency to develop specific allergic manifestations seems to be well established. We will meet



many of them in our daily practice, and it is important that we recognize them. It is, however, equally important not to allow our enthusiasm to lead us to attempt to explain almost all disease syndromes on an allergic basis.

## TUMORS OF THE SCAPULA

### Osteoma With Report of Case

J. A. WILLIAM JOHNSON, M.D., F.A.C.S.  
Newton

Tumors of the scapula are not numerous, but they occur often enough to be of interest to the physician because of the symptoms they produce; the pathology and metaplasia that develop; the disability because of location; the problem of their removal with ensuing disability; and their recurrence. There are voluminous and interesting scientific contributions to medical literature on this subject.

### CLASSIFICATION AND PATHOLOGY

We may conveniently classify tumors of the scapula into osteomata, chondromata, and osteochondromata. The term osteomata applies to those tumors composed of osseous tissue. According to origin and development chondromata in general can be classified into two groups; first, the homoplastic group or enchondroma representing a pathologic overgrowth of pre-existing normal cartilage; and second, the heteroplastic or osteochondroma, or those which develop where no cartilage is normally found. Chondromata reproduce histology of normal cartilage as to detail of general structure with complete absence of blood vessels and nerve fibers. If they grow much beyond the size of normal cartilaginous structure they tend to undergo degeneration as follows: mucoid, calcareous, and fatty. Mucoid degeneration occurs mostly in chondromata that contain the large stellate cells, and may be so extensive as to form fluctuation of the tumor. The fluid is of the consistency of the white of an egg, opalescent with loose masses of softened tumor floating in it. Bigelow reported a case in 1863 that had been carried since childhood and was removed after death. It weighed thirty-one pounds and had been that size for forty years. Microscopic examination was that of a pure enchondroma and was in accordance with the gross appearance.

Miningham in 1913 removed a tumor, weighing seventeen pounds, from a man who returned to his work in perfect health, carpenter and driver of a delivery wagon, with all the movements of his arm except the backward movement. This man was twenty-five years of age. "The tumor began

twenty years ago on the dorsal surface of the right scapula. [Or when he was five years of age.] Painless and slowly growing until two years ago. Upward and backward motion restricted. For ten months there had been a deep ulcer on the most posterior portion of the tumor which refused to heal under treatment. The mass was large, nodular and extended the full length of the scapula and laterally from the vertebral border to the neck of the bone. The overhanging portion projected well beyond these limits. The weight of the tumor produced lateral curvature of the spine and a marked depression of the right shoulder. He had been exhibited before medical associations as inoperable and rejected from three hospitals." Microscopic examination showed pure enchondroma with extensive deposits of lime salts.



Photograph of tumor.

We have an osteochondroma where a cartilaginous tumor becomes ossified to form true bone. Often lime salts are deposited in a chondroma and we have an ossifying chondroma. Degenerative changes may take place and give rise to chondrofibroma, chondromyxoma, etc. There may be a marked proliferation of cartilage cells, and the tumor takes on the aspects of a malignancy and we have a chondrosarcoma. There are cases reported where a medulloma was removed from the scapula of a boy nineteen years of age in 1877 by Pean. Cairns of Gibraltar removed a metastatic

melanoma in 1922. Hill removed a fibroma from a scapula in 1870. Hyderling removed an endothelioma from a scapula in 1930.

As to the etiology, Virchow has shown that there are left in the bones of adults islands of unossified cartilaginous tissue cells, which later after proper stimulation, develop into tumors. Trauma has long been accepted as a stimulating factor in the development of enchondromata, according to Weber, who reports fifty per cent of his cases due to injury. Helmholtz in 1907 injected Sudan III and olive oil in the ear of a rabbit and proved the relationship between trauma and irritation and the production of enchondromata, because of the fact that after the injection, the stellate connective tissue cells multiplied very rapidly and then developed into nodules of typical hyaline cartilage. He proved that the tumors developed in the new connective tissue because of the stimulation caused by Sudan III.

Heredity plays very little if any part. Merchand did observe four or five cases in one family. Weber reports one instance where grandfather, father and daughter suffered from enchondromata and exostosis. According to Sudler, professor of surgery of the University of Kansas, the order of frequency in which various bones are involved is as follows:

1. Hollow bones of the hand.
2. Hollow bones of the tibia and femur in a similar ratio.
3. The jaw, pelvic bones, and scapula.
4. The ribs, the skull bones (especially the occipital bone).
5. The vertebrae, sphenoid, and sternum, these being the least prone to develop tumors.

The ordinary symptoms are diffuse pain in the affected scapular region extending down the corresponding arm, swelling and deformity and later a palpable tumor. As these tumors increase in size or recur, their growth may involve the entire shoulder girdle, producing pain, weakness of the arm, and total disability of the shoulder. When the growth extends toward the chest a grating can be felt as the shoulder is moved backward and forward, because of the growth sliding or jumping over the ribs. At this place will also develop an adventitious bursa.

#### CASE REPORT

The following history was taken May 21, 1934, from the patient, a clerk in a store, and twenty-four years of age.

*Chief complaint:* Left shoulder becoming hump-like with occasional cramp-like pains. Cracking noise when shoulder is moved.

*Present illness:* Was first noticed about four years ago when left shoulder began to grow prominent and patient felt a grating sound upon motion. He wore a shoulder brace with no relief.

*Past history:* As a boy, the patient was healthy, having measles, mumps and chickenpox with good recoveries. He has two scars on the left shoulder, but does not remember how he acquired them. For seven years he has clerked in a store and carried potatoes, flour, sugar and apples in sacks and bushel measures on his shoulder. The baskets or boxes were carried in his hands mostly. An appendectomy was performed in January, 1933, and a tonsillectomy in the spring of 1933.

*Family history:* The father was fifty years of age and in good health; the mother was also fifty years of age and in fair health, except that she complained of "stomach trouble." Two brothers and five sisters were living and in good health. There was no history of cancer or tuberculosis in the family.

*Physical examination:* The physical examination was negative except for a prominent left shoulder with scar, and a scar over the appendix region. An x-ray showed a bony growth arising from the upper edge of the left scapula at the median end of the scapular spine, extending toward the chest. A preoperative diagnosis of osteochondroma was made.

*Operation:* On May 23, 1934, after iodine and alcohol preparation, and infiltration with two per cent novocain, an incision was made parallel to the inner margin of the scapula and carried down to the inner aspect of the spine by splitting the fibers of the trapezius and dividing the rhomboid minor and major muscles in order to expose the site of the tumor. A Gigli saw was passed, and the tumor was sawed off. An adventitious bursa was carefully dissected out, and the bleeding controlled. The end of the bone where the amputation had been made was covered with muscle, after the edges had been smoothed with bone rongeur. The muscles were restored to normal; a Penrose drain installed; and the fascia restored. No. 2 chromic catgut was used throughout except for No. 2 plain gut to control hemostasis. The skin was closed with No. 2 chromic interrupted sutures. On the third or fourth day the wound began to discharge pus which could not be accounted for excepting that it might have been autogenous in the adventitious bursa, because the patient seemed to be losing weight and was in a rundown condition before the operation. Malignant changes were feared, but to date the x-rays of the chest have been negative.

*Description of tumor:* "The specimen consists



of a bone tumor, the shape of which is that of an inverted frustum of a pyramid. The frustum end is attached to a thin plate of bone. The base of the pyramid is unattached. The general appearance can be seen by the accompanying photograph. The tumor is composed of bone tissue. Diagnosis of osteoma."

### THE FINLEY HOSPITAL CLINICO-PATHOLOGIC CONFERENCE

#### ACUTE HEMORRHAGIC PANCREATITIS

F. P. McNAMARA, M.D., Dubuque

There are physicians and surgeons who are not familiar with the pathology and clinical features of acute pancreatitis. In our series of 400 necropsies, acute necrosis of the pancreas was encountered in five instances (1.25 per cent). In only one case was the diagnosis suspected by the clinicians. In another patient, the pancreatic lesion was a terminal event complicating acute uremia due to chronic glomerulonephritis. Three of the five patients had been subjected to exploratory laparotomy and fat necrosis of the omentum was noted. However, the surgeons did not realize the significance of this finding. Therefore, the following case is reported in the hope of stimulating renewed interest in this disease which is more common than generally supposed.

#### CASE REPORT

The patient, a white woman, thirty-six years of age, was admitted to The Finley Hospital, December 2, 1932, with a complaint of "severe abdominal pain, vomiting, and prostration."

*Family history:* Irrelevant.

*Past history:* The patient had six children born after normal pregnancies and deliveries. Following the birth of the last child, five months ago, the patient had phlebitis. A week ago she had a severe toothache lasting twenty-four hours and accompanied by a distinct chill. She had occasional attacks of indigestion accompanied by belching of gas.

*Present illness:* Eight hours before admission the patient was seized by an excruciating pain in the abdomen. The pain was constant and gradually increased in severity. She vomited many times and became very weak and prostrated. When first seen the temperature was 99.4 degrees, the pulse 96, and the respirations 24 per minute. There was no distention of the abdomen, but distinct tenderness and muscle spasm over the appen-

dix region, and to a lesser extent over the gallbladder. The white blood count at that time was 9,200; the urine showed four grams of albumin per liter, but no sugar. She was advised to enter the hospital.

*Physical examination:* The patient was a fairly nourished white woman who appeared acutely ill and in evident pain. Her color was ashen gray and her lips were slightly cyanotic. Aside from a few carious teeth, the general examination was negative. The abdomen was slightly distended and tender throughout. The tenderness was most marked over the appendix region where there was definite muscle spasm. There was also distinct tenderness over the region of the gallbladder. No masses could be felt in the abdomen. The temperature was 99.8 degrees, the pulse 84, and the respirations 22 per minute. The white blood count was 10,800.

*Preoperative diagnosis:* Acute appendicitis with a question of acute cholecystitis.

*Operative note:* On opening the abdomen considerable dark blood tinged, serous fluid was found. There were numerous waxy areas scattered throughout the abdominal fat. The gallbladder contained several stones, but was otherwise negative. The dark fluid apparently came from the region of the stomach and duodenum, but no perforation could be found. The appendix was thickened and inflamed. It was removed as a routine measure. Because of the patient's poor condition drains were inserted and the wound was closed.

*Postoperative diagnosis:* Acute hemorrhagic peritonitis of unknown origin; chronic appendicitis and cholecystitis with stones.

*Postoperative course:* Following the operation the patient was extremely ill, complained of nausea, severe abdominal pain and vomited persistently. The temperature rose rapidly to 105 degrees, the pulse to 150, and the respirations to 40 per minute. The abdomen became markedly distended and there was free drainage of blood tinged fluid. In spite of treatment she died on the third day after operation. The final clinical diagnosis was acute peritonitis of unknown origin.

*Necropsy abstract:* The peritoneal cavity contained a moderate amount of blood tinged fluid and there was a little fibrinous exudate over the omentum which was adherent to the gallbladder. The latter contained several mulberry stones and one stone was found in the ampulla of Vater. The pancreatic duct opened into the ampulla. The head of the pancreas was softer than normal, edematous and was surrounded by dark brownish red blood. Microscopic sections showed an acute

necrotizing pancreatitis with hemorrhage. There were numerous chalky areas of fat necrosis scattered through the abdominal fat, but most marked about the pancreas (Fig. 1). There were no other important findings.

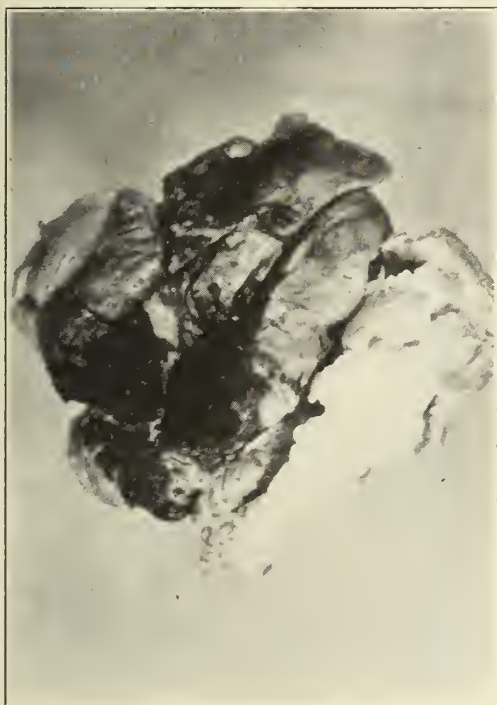


Fig. 1. Photograph of the pancreas and omentum.

*Anatomic diagnosis:* 1. Chronic cholecystitis and cholelithiasis; stone in the ampulla of Vater.

2. Acute hemorrhagic pancreatitis with fat necrosis of the abdominal fat; localized peritonitis.

3. Operation: (exploratory laparotomy, appendectomy and drainage).

#### COMMENT

The failure to make a correct preoperative diagnosis in this instance is not surprising as a review of the literature indicates that this is true in two-thirds of the cases. If acute pancreatitis is kept in mind by surgeons, probably the percentage of preoperative diagnoses can be improved. In the case cited, the marked prostration, the persistent vomiting and the ashen gray color, all of which were out of proportion to the other clinical signs, were the keys to the correct diagnosis. No record of the blood pressure was made, but it might have aided in the diagnosis as it is usually low in acute pancreatitis. Certainly, every abdominal surgeon should be familiar with the appearance and the significance of acute fat necrosis within the peri-

toneal cavity. When observed at the operation it should have made the diagnosis clear. The fact that the lesion had no meaning to the surgeon in this and two other operative cases is strong evidence that a brief review of acute pancreatitis is needed.

#### GENERAL DISCUSSION

*Incidence:* In the past acute pancreatitis with necrosis and hemorrhage was thought to be a very rare disease. In recent years it has been reported with increasing frequency and Schmieden and Sebening<sup>1</sup> collected reports of 1,278 patients operated upon over a period of eight years. Undoubtedly, many cases are missed because of incorrect diagnosis. Women are affected slightly more often than men. The disease may occur at any age, but is encountered most frequently between thirty and sixty years of age.

*Etiology:* While the etiology of acute pancreatitis with necrosis is not entirely clear, in three-fourths of the cases it is associated with chronic cholecystitis usually with calculi. Opie<sup>2</sup> showed that the injection of bile into the pancreatic duct would cause hemorrhagic pancreatitis in animals. Previously, he had described a case with a gall stone impacted in the ampulla of Vater which caused bile to enter the pancreatic duct, thus producing acute necrosis. Without doubt this explains some cases of acute necrosis of the pancreas, but stones are not always present and other explanations are needed. In such cases infection by direct extension from neighboring organs, lymphatic spread from the gallbladder, or more rarely by way of the blood stream, is considered possible. As predisposing etiologic factors, heavy eating or drinking are recognized. Not infrequently, a heavy meal precedes the onset of symptoms.

*Pathology:* When the injurious agent, whatever its nature, reaches the pancreas it results in a variable degree of acute necrosis. Thus we may have a localized suppurative process, acute hemorrhagic pancreatitis or very rarely gangrenous pancreatitis. In acute hemorrhagic pancreatitis, the pancreas shows scattered, dark red or purplish-black areas. On section, these appear dry and dull, being surrounded by hemorrhages. Sometimes they undergo softening. Microscopically, they are areas of necrotic pancreas encircled by changed blood and acute inflammatory exudate. Because of the injury to the glandular tissue, the pancreatic juice escapes into the adjacent tissues. In contact with adipose tissue, the lipolytic ferments of the pancreatic juice decompose the fat



in the fat cells. Thus, the opaque, chalky white areas of fat necrosis are produced. They are usually widespread throughout the peritoneal cavity in acute necrosis of the pancreas.

*Diagnosis:* Frequently patients give histories indicating chronic gallbladder disease, but in many instances the onset is sudden. The symptoms are characterized by agonizing pain about the epigastrium or umbilicus, nausea, persistent vomiting, and signs of collapse. The pain often radiates to the back and less frequently to the shoulders. Halstead first described a distinctive, slate gray cyanosis limited to the upper portion of the chest and head, and this sign has been noted by many others. When present it is pathognomonic of acute pancreatitis. Abdominal tenderness is usually present but varies in its location. Muscle spasm is seldom marked and this aids in the differentiation from a perforated gastric ulcer which is accompanied by board-like rigidity. The laboratory examinations are of little aid, but usually there is a leukocytosis varying between 10,000 and 30,000. As a rule, the temperature and pulse are moderately elevated. At operation the finding of blood tinged fluid and areas of fat necrosis within the abdomen makes the diagnosis clear.

*Treatment:* In the past, immediate laparotomy was considered the proper procedure by surgeons in this and most European countries. More recently Danish surgeons have favored deferring operation until the pancreatic symptoms have subsided unless diffuse peritonitis or abscess formation supervenes. From their experience at the University of Pennsylvania Hospital, Eliason and North<sup>3</sup> favor dealing with cases of acute hemorrhagic pancreatitis as one would with an uncomplicated acute cholecystitis or acute salpingitis, namely, deferring operation until after the acute phase, unless an occasion arises demanding immediate surgical interference. The reader is referred to their paper for details of the different surgical procedures utilized in the treatment of acute pancreatitis and its complications.

*Prognosis:* The prognosis is very serious. Statistics of collected cases indicate a mortality rate of 50 per cent. Eliason states that Mikkelsen reported recovery in fifty consecutive cases treated either non-surgically or with deferred operation as compared with a mortality rate of 66 per cent following immediate operation.

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#### RESOLUTIONS ON SANITARY PLUMBING

Of interest to the members of the medical profession are the following resolutions adopted by the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association:

*Whereas*, At the annual meeting of the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association held at St. Louis, Mo., February 25, 1936, a presentation was made by Major Joel I. Connolly, of the Chicago Board of Health, relating to possible health hazards in apparently modern plumbing installations in public buildings, and

*Whereas*, It was manifest in the said presentation that plumbing fixtures which have been generally regarded as safe and sanitary in design may in fact constitute a real and serious health hazard by reason of the danger of back siphonage and contamination of water supply mains, and

*Whereas*, The probability exists that such apparently modern, safe and sanitary plumbing installations may exist in numerous school buildings in the United States, and

*Whereas*, The existence of such apparently safe, modern and sanitary plumbing installations and reliance upon them brings about a sense of false security, therefore, be it

*Resolved*, By the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association that this Committee apprehends the possibility of danger to the health of school children from apparently safe, modern and sanitary plumbing installations in school buildings, and be it further

*Resolved*, That the said joint Committee earnestly recommends to all school boards and school executives that surveys be instituted by competent engineers to ascertain whether or not the danger of back siphonage and consequent pollution of water supply mains exist in plumbing installations within their jurisdictions, and that such surveys be followed by prompt corrective measures, and be it further

*Resolved*, That these resolutions be offered for publication to all journals dealing with public health, health education and general education.

# STATE DEPARTMENT OF HEALTH

*Nathan L. Biering*

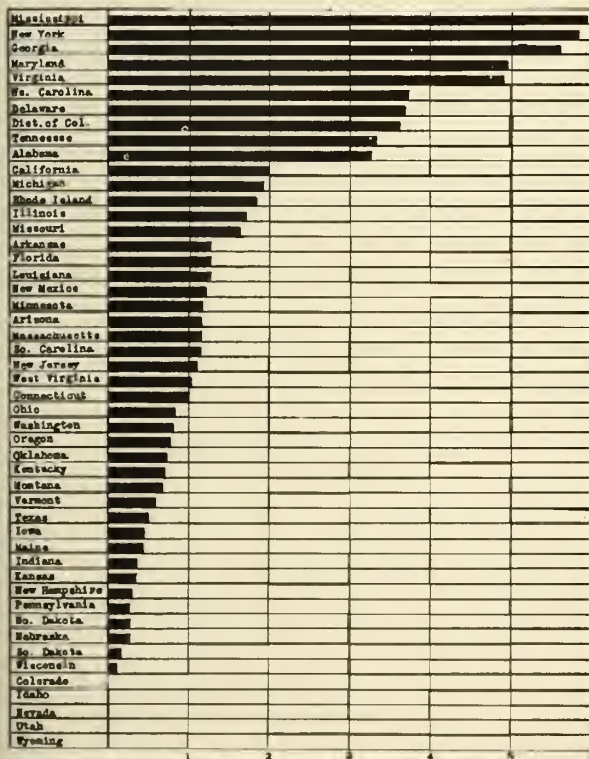
## SYPHILIS IN IOWA

### Reporting of Cases:

Iowa is near the cellar position as compared with other states in the reporting of cases of syphilis. This is shown in the accompanying bar diagram which indicates the number of cases per 10,000 population as reported by the various state health officers to the United States Public Health Service. In April, 1936, Iowa reported 111 cases, a rate of 4.4 per 10,000 population. Iowa's average monthly rate for the year 1935 was 5.0

### REPORTS OF SYPHILIS FROM STATE HEALTH OFFICERS APRIL, 1936

Arranged According to Cases Reported  
Cases Per 10,000 Population



per 10,000. It will be noted in the diagram (Fig. 1) that Mississippi ranks first in the reporting of syphilis. It might seem that the relatively high rate of reporting in that state is attributable to

greater prevalence of luetic infection in the colored race. To offset this factor, the state of New York, with a population predominantly white, runs Mississippi a close second in the reporting of syphilis.

If the notification of this condition were more adequate, it would be revealed as one of the most prevalent of communicable diseases. If death records were to tell a more complete story, syphilis would definitely be classed among the major causes of mortality. Syphilis, all will agree, presents a health problem of enormous proportions. Whether a physician in his practice observes few or many cases, he will appreciate the need for reporting them. Reporting is carried out in the usual manner, by means of special report blanks and franked envelopes which are provided by the State Department of Health. With the continued cooperation and increased interest of physicians in reporting their cases, Iowa will climb to a much higher level in the reporting of syphilis, the disease which has aptly been designated as "the great destroyer of life."

### Sources of Infection:

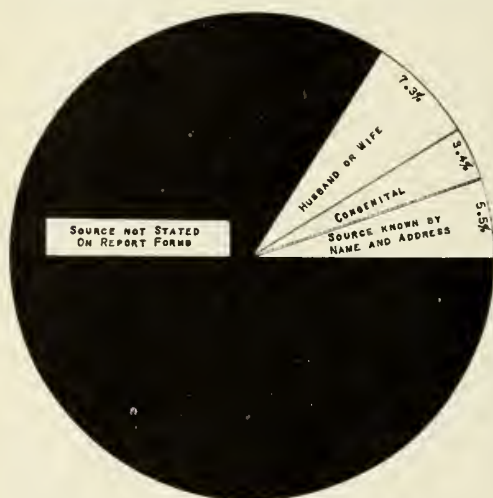
Limitation of the spread of syphilis is dependent in a large degree upon knowledge regarding the source of infection and upon control measures directed to such sources. If information pertaining to the source of infection is lacking, efforts toward the control of syphilis in a community are ineffective. The accompanying bar diagram (Fig. 2) is based on a study of the information contained on report forms of 1,459 cases of syphilis, reported to the State Department of Health in 1935. It will be noted that only 5.5 per cent of the records give essential information, i. e., state the name and address of the person designated by the patient as being the source of infection. Among the records for 1935, 3.4 per cent mention congenital disease, and 7.3 per cent, refer to husband or wife as the source of disease spread. As will be observed from Fig. 2, 84 per cent of the records give no knowledge as to the identity of the person responsible for the spread of this communicable disease. In a great majority of the 1,459 records of reported cases,



information as to the source of infection is limited to designations such as "unknown," "usual," a question mark or a check mark. It is not expected that the reporting physician will succeed in securing the name and address of the incriminated

#### SOURCE OF INFECTION IN REPORTED CASES OF SYPHILIS IN IOWA

"Pie" Diagram Showing Percentage Distribution of Types of Information Contained in 1,459 Reports for 1935



source in every case. However, by obtaining the patient's confidence and by pointing out how essential it is in view of public health aspects that the source of infection be identified, the desired information should be elicited in a far higher percentage of cases than in the past.

#### TICK SURVEY IN IOWA

A tick survey was begun in June and July of this year, in connection with the study of Rocky Mountain spotted fever, cases of which have been reported in Iowa since 1933. The two-fold purpose of this survey is to obtain accurate information as to prevalence of the common dog tick (*Dermacentor variabilis*) and other ticks in different parts of the state and as to the percentage of ticks which harbor the spotted fever virus. The work is sponsored by the State Department of Health in cooperation with Carl J. Drake, state entomologist, and R. R. Parker, special expert, United States Public Health Service of the Rocky Mountain spotted fever laboratory at Hamilton, Montana. Mr. Dean Eckhoff, a graduate student in entomology at Iowa State College, has done most of the work of collecting the ticks and forwarding them to Montana. The survey is made possible by funds available through the Social Security Act.

Thus far, the survey has reached thirty-five

counties, including those from which one or more cases of the disease have been reported in the last three years. Approximately 850 ticks were collected between June 20 and the middle of July. Most of the ticks were obtained by dragging a piece of canvas eight by ten feet, over vegetation, along roads and timber paths frequented by animals. Early in July, it became increasingly difficult to collect ticks, due in part to the natural decline in tick abundance at this time of year, but due chiefly to the excessive heat coupled with prolonged drought. In a number of localities in which the sweeping of vegetation failed to yield ticks, considerable numbers were found on dogs and other animals which frequented wooded areas. Ticks were kept alive during shipment to Montana by placing ten to fifteen of them in a small glass vial containing moistened paper and a small wad of cotton. To retain moisture, the vial was tightly corked.

Doctor Parker and his assistants in the Montana laboratory are carrying out the work of species identification and virus determination on the material forwarded from Iowa. It is hoped that the tick survey may be carried further, in the early spring of 1937.

#### PUBLIC HEALTH EXHIBIT AT THE STATE FAIR

Des Moines, August 28-September 4, 1936

The State Department of Health expects to present at the coming Iowa State Fair an informative and interesting exhibit of the newer activities of this department. Each feature of the exhibit will offer a special appeal and attraction to the visitors. Opportunity will be given to play, and take a chance, without cost, in the instructive game "Healthy," which illustrates the five essential activities of a modern health department. The winner of every game will receive a useful award, and the department will offer special prizes several times a day.

The services of a free hand artist will be supplied by the WPA to picture the activities of a whole time county health unit. A series of sketches will show health problems as they occur in an average Iowa county, and point out how such problems are handled by trained health workers, serving whole time. The new tabulating machine recently installed by the division of vital statistics will show how record cards of all types can be sorted at the rate of 480 a minute. A question box will be used and the visitor will press a button which lights a certain question on the instrument board; as for example, "How many people died of cancer in 1935?" The machine

will sort the death record cards and give the answers while the visitor watches.

The division of preventable diseases and epidemiology will show by a series of prepared neon illuminated charts, the curves of the incidence and mortality rates of several communicable diseases in the state of Iowa. A particular feature of the exhibit will be a marionette show, the puppets talking from prepared phonograph records, to illustrate the activities of the division of child health and health education.

The exhibit will further emphasize the possibility of spreading disease through and by milk, from the time that it is produced from healthy animals to the time it reaches the consumer. The growth of bacteria in milk will be demonstrated by plates showing actual bacterial colonies, and the effect of cleanliness in production and handling, of temperature, and of pasteurization, will be shown by these bacterial growths. The milk sanitarian will be present to explain all phases of milk sanitation. The public health aspects of sewage disposal will be presented; first, by a model of an insanitary outdoor toilet to demonstrate the possible spread of disease by infected water, through flies and other insects, and fowls and small animals; and second, by a model of a sanitary privy that can be constructed at a reasonable cost and which eliminates all of the above possible hazards. The latter model will be an exact duplicate of the full size structure, showing details of construction methods and these plans will be available.

An illuminated map will show the location of active community sanitation projects that are now being carried on in fourteen Iowa counties with free labor furnished by WPA workers. An engineer will be present to discuss possible extensions of this project in other interested counties.

DOCTOR WALLACE VISITS IOWA

Dr. J. W. Wallace, of New York City, field secretary of the American Public Health Association and field representative of the United States Chamber of Commerce, recently visited Iowa and the State Department of Health. Dr. Wallace directs activities relative to the Inter-Chamber Health Conservation Contests, as sponsored by the United States Chamber of Commerce. City health departments and whole time county health units are eligible to participate in the Health Contests, awards being given each year to cities and counties showing evidence of a high standard of organization and accomplishment in the field of health activities. Dr. Wallace served as deputy

commissioner of the Iowa State Department of Health from July 1, 1927, to February 1, 1928. He took an active part in connection with enactment of the law "permitting counties or groups of counties to organize as health units so that they may employ a health officer on a full time basis." Dr. Wallace, during his period of service in Iowa, conferred with city and county health officials in many counties and did much to arouse interest in whole time health work in this state.

NEW PERSONNEL APPOINTED

The following appointments to the central administrative staff of the State Department of Health represent part of the extension of health activities of the department, made possible by the Social Security Act. Dr. J. M. Hayek, of Cedar Rapids, graduate of the University of Iowa and member of the Iowa Pediatric Society, has been appointed as pediatrician in the Division of Child Health and Health Education. Dr. Hayek began his work on June 15, 1936. Dr. Paul Stephen, graduate of the University of Iowa College of Medicine, has been appointed as assistant in the Division of Communicable Diseases and assistant epidemiologist. He began his duties on July 1, 1936.

PREVALENCE OF DISEASE

	June '36	May '36	June, '35	Most Cases Reported From
Diphtheria .....	11	17	30	Linn
Scarlet Fever .....	393	674	232	Woodbury, Black Hawk
Typhoid Fever .....	5	12	3	Muscatine
Smallpox .....	60	169	30	Woodbury
Measles .....	18	25	479	(For State)
Whooping Cough ..	60	34	82	Linn
Cerebrospinal Meningitis .....	6	8	7	Wapello
Chickenpox .....	90	235	176	Dubuque
Mumps .....	151	402	462	Montgomery, Black Hawk
Poliomyelitis .....	0	1	0	(For State)
Tuberculosis .....	47	55	52	(For State)
Undulant Fever ...	13	9	9	(For State)
Syphilis .....	73	117	153	(For State)
Gonorrhea .....	141	138	146	(For State)

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY

The next written examination and review of case histories of Group B applicants by the American Board of Obstetrics and Gynecology will be held in various cities in the United States and Canada on Saturday, November 7, 1936. Application blanks and booklets of information may be obtained from Dr. Paul Titus, Secretary, 1015 Highland Building, Pittsburgh, Pennsylvania. Applications for this examination must be filed in the Secretary's office sixty days prior to the scheduled examination.



The JOURNAL of the

Iowa State Medical Society

ISSUED MONTHLY

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THE PHYSICIAN'S REWARD

Of all the animal kingdom, man is unique in possessing creative ability. The beaver builds an impressive home and his cunning is remarkable, but so far as we can determine his home is like that of all other beavers of all other times. The busy ants fashion intricate subterranean tunnels and rooms to house the numerous members of their colonies, but they, too, adhere to a pattern as old as history. Man alone evolves by reasoning and knowledge, new and increasingly efficient methods in work and play, in thought and action. In order that man may secure personal gain from the use of his creative gift, laws have been made for the protection of his creations for a time sufficient to assure this reward. The mechanic may devise a tool essential to commercial advancement, but he is bound by no laws, written or implied, not to guard his idea until sufficient compensation has been arranged. The chemist may devise a new fuel for transportation which because of efficiency or cost would revolutionize industry, but he would be considered definitely feeble-minded if he should give his secret to the public merely because it was beneficial to mankind.

Protection for personal gain is the rule in business, at least in all enterprises but the practice of medicine. Inherent in the ethics of medicine is the principle that the physician must give freely of his time, his skill and his creative ability for the welfare of mankind. His is a peculiar vocation in which he must consider only the blessings which he may bring to humanity. Creations in medicine must, according to the traditional code, be given freely and without price. Abstractly this principle seems to be based on false and illogical premises. Why should the physician alone be denied the reward of his creative genius? Sound

reasoning says he should not, and generations of physicians declare that he is not. Like his creative brothers in other lines of endeavor, he is rewarded, and the reward is often a rich one indeed. The reward of the physician does not lie in royalties or sales, but in the esteem of his patients and his colleagues which assures financial success. What physician would feel unrewarded to stand in the medical hall of fame with Hippocrates, Galen, Hunter, Lister, Pasteur, Holmes, Cushing, Banting and scores of others whose creative genius has so richly added to the sum total of human welfare and happiness? Is theirs a less desirable lot than that of Fulton, Bell, Wright, Westinghouse, Eastman, or Edison?

The physician's reward is as certain and his fame as secure as his creative colleagues in industry. The public has never denied genius and never disclaimed those whose creations have so richly embellished the fabric of human evolution. Is it not reward indeed to be one of that great army of physicians into whose custody the health of the race is entrusted, and at the same time be set apart as one whose skill has added to the wealth of knowledge which becomes the heritage of coming generations? Wealth is a desirable reward, but greater still is the respect and regard of those with whom we work and live.

DO WE LIVE LONGER?

Vital statistics indicate that the mean length of life, or what has popularly been called the expectation of life, has been greatly improved during the past half century. This conception, due in part to the terminology used, has led medical authors to misstatements of this fact. It is stated, for example, that the span of life has been lengthened, or that ten years have been added to the individual life. Quoting from a publication of the United States Public Health Service, we find this characteristic statement, "Great strides have been taken by medical science in lengthening the average span of life."

The span of life is considered as the maximum period of life during which the healthiest individual may exist, and in this country at least, this figure is probably about one hundred years. We find authentic records of people living to one hundred, one hundred and one, one hundred and two, and possibly, up to one hundred and six years of age. Citations of persons living beyond this age are usually based upon unreliable evidence, and for this reason must be doubted. Buried in a crypt near the Poets' Corner of Westminster Abbey is

a man by the name of Parr, who the records state, lived to be about one hundred and forty years of age. Additional records state that he married for the second or third time when he was well over one hundred years of age. The record is interesting, but with all due respect to Westminster Abbey and the men who lie under its floor, one cannot help doubting the accuracy of the report.

More recently, Dublin and Lotka in their book entitled "Length of Life," cite the history of a Dane who was born on November 18, 1626, and died on October 9, 1772. It is interesting to note that this man lived under seven Danish kings; that at the age of sixty-eight he was taken a prisoner by Algerian pirates and sold as a slave; that he remained in slavery for fifteen years; and after his return as a man of eighty-four he again took to active marine service in the war against Sweden. At the age of one hundred and eleven years, so the account goes, he celebrated his marriage to a sixty-year-old widow of a sea captain. At the age of one hundred and thirty years, he proposed to several women, but without success. Sixteen years later, he died in Denmark. This again is an interesting citation, but one can scarcely refrain from doubting vital statistics dating back to the early seventeenth century. Certainly in the period during which we have had accurate, well kept vital statistics, no such advanced ages are recorded, and apparently a generous span of life may be set at one hundred years.

However, while we find the span of life unchanged during the more recent times when reliable statistics are available, the mean length of life or expectation of life has been signally improved. Using the original registration area, comparable figures can be cited covering the past thirty years. In 1901 we find an expectation of life at age zero of 48.23; whereas in 1930 it is 58.84, a gain of about ten years in the mean length of life during the last thirty years. However, if we look at the expectation of life for the person fifty years of age, in 1901 we find the figure is 20.76; whereas in 1930 it is 20.83. At sixty years of age the expectation of life in 1901 was 14.35; whereas in 1930 it was 14.24. From these figures it will be seen that at the age of fifty years, there was a slight gain in the expectation of life, but at the age of sixty years the reverse took place, and there was a loss in the expectation of life. Therefore, one is justified in concluding that the gain has been made during the early years of life, the

majority, of course, during the infant ages. We may go farther and state that the gain has occurred largely during the first year of life. To investigate this point, we may cite that in 1901 at ten years of age the life expectancy was 50.53 years, and in 1930 it was 54.50, a gain of four years against ten years at age zero. By the time the age of thirty years is reached, there is only a gain of two years in the expectation of life.

Again quoting from a publication of the United States Public Health Service, we find this significant statement. "Statisticians of the United States Public Health Service tell us that this impressive decline in death rates from infant mortality and communicable or infectious diseases has gone hand in hand with an alarming increase in the mortality from such diseases as cancer and heart failure. In conquering the diseases particularly associated with the older age groups, medical science still has a long road to travel." Differently stated then, the concept recorded is that the increase in the mean length of life has largely been a saving during infancy and childhood, and this is exactly what these comparative vital statistics reveal.

As a sidelight to this illuminating discussion, one cannot but wonder where credit should be given for this saving. The sanitarian would take credit for the gain due to the pure water supply, the protection of the public by sanitary milk handling, the elimination of mosquito propagation areas in malaria and yellow fever control, etc. The public health official would ascribe the saving to the control of preventable diseases, such as smallpox, typhoid fever, diphtheria, more effective quarantine regulations, and curtailment in the contagious and infectious diseases of childhood. The pediatrician would take credit for better care of infants and children, citing the improvement in the expectation of life as occurring during the period of rapid growth and development of this specialty. The general practitioner would claim at least a share of the credit, due to the higher standards of general medical education and a resulting improvement in medical care to all persons. Evidence is not at hand to settle the controversy, and like the question, "Who won the war?" this query may remain unanswered. Perhaps we can all agree that the advance in medical science as reflected in medical care and higher standards of living is the most important single determining factor.



# A New Approach to Diphtheria Prevention

JOSEPH H. KINNAMAN, M. D.

Director Division of Child Health and Health  
Education, Iowa State Department of Health

County medical societies of seventeen counties helped the Division of Child Health and Health Education of the Iowa State Department of Health to organize and conduct county-wide diphtheria preventive programs during June, 1936. Under the provisions of the Social Security Act for maternal and child health services, the state health agency paid physicians in those counties for giving one dose of diphtheria alum precipitated toxoid to all youngsters residing in those counties and in the age group, nine to twenty-four months, inclusive. The treatments were administered in the offices of the participating physicians. Each county medical society set the amount to be charged the parents for giving the treatment to children over twenty-four months of age. Children were treated during given hours on a selected day of the several weeks in the month, such as on each Saturday during June between 2:00 and 5:00, and 7:00 and 9:00 p. m. This program was initiated in those counties, which during the past several years, have had the highest life-loss rates from diphtheria. During June programs were carried out in Adams, Appanoose, Dallas, Davis, Decatur, Keokuk, Louisa, Lyon, Madison, Mills, Monona, Monroe, Page, Polk, Poweshiek, Ringgold and Shelby counties.

To establish a factor of safety against outbreaks of diphtheria it is necessary to give protective treatments to at least 30 per cent of the preschool age group in a community. The findings of a house to house survey made in ten Iowa counties during 1934 indicate that less than 18 per cent of the children five years of age and under in those counties had been treated with a diphtheria preventive agent. An analysis of the records of diphtheria prevention programs conducted prior to June 1, 1936, shows that only 28 per cent of all the children treated fall in the age group, five years and under. Under the new plan (June, 1936), 71 per cent of all the children treated were of preschool age. Since more than 60 per cent of the deaths from diphtheria in Iowa occur in the age group, five years and under, it is apparent that the new plan offers a much greater possibility for reducing life-loss from that disease than did the old approach.

The basic purpose of this new approach to diphtheria prevention is to establish in the short-

est possible period and with a minimum outlay of money and effort, a percentage of treated children in the preschool age sufficient to ensure safety against community outbreaks. After a factor of safety (30 per cent or more of the preschool population treated) is established, the problem of diphtheria prevention resolves itself into the treatment of only 30 per cent of the babies under one year of age. Physicians need to treat in their offices not less than one out of every three babies to whom they give care during the first year of life, to ensure, once the factor of safety is established, that the percentage of treated preschool children will not fall below 30 per cent.

The department has federal funds available for the remainder of the fiscal year ending June 30, 1937, with which to carry out the new program in twelve other counties. The list of eligible counties include Audubon, Buchanan, Cass, Crawford, Delaware, Dubuque (exclusive of the city of Dubuque), Harrison, Jackson, Marion, Pottawattamie (exclusive of the city of Council Bluffs), Winnebago and Woodbury (exclusive of Sioux City).

The department believes that funds for paying physicians for services rendered can be secured from local sources in many Iowa counties. Upon request of a county medical society, a representative of the Division of Child Health and Health Education of the State Department of Health will help to obtain the financial support for the project.

An outline of the plan follows:

## I. The County Medical Society

### A. Contracts to assist with the conduct of a year round preventive program, the essential features of which include:

1. Bringing all forces concerned to bear effectively on the problems of securing treatment of children in the preschool age during one month of the year.
  - a. By treating, without cost, to the parents, all children in the age group, nine to twenty-four months inclusive.
  - b. By offering to give preventive agent to children older than twenty-four months for a fee to be

determined by the membership of the county society.

2. Offering, during any of the other eleven months of the year, to treat, without cost to parents, all children, residents of the county and in the age group, nine to twenty-four months inclusive.
- B. Appoints a Committee on Immunization from its membership with full power to act for the purpose of assisting with the organization of the program by:
1. Serving as a liaison between the State Department of Health and other co-sponsors.
  2. Determining the month, the day and the hours, during which an intensive drive will be conducted.
  3. Preparing a list of participating physicians.
  4. Demonstrating the technic of intradermal (Schick) test for immunity and interpreting the possible reactions to same.
  5. Deciding, after counsel from the State Department of Health, the advisability of and the necessity for the establishment of treatment stations.
  6. Allocating physicians to serve areas without medical services.
  7. Reviewing and approving publicity material, literature, etc.
  8. Supplying speakers to address lay organizations.
  9. Receiving, maintaining under proper refrigeration, and distributing preventive agent.
  10. Collecting a record card for all individuals treated by each of the participating physicians and turning the cards over to a representative of the State Department of Health.
- C. Determines the fee to be paid participating physicians for treating children older than twenty-four months.
- D. Disburses funds paid to it for treating, without cost to parents, youngsters in the age group nine to twenty-four months, inclusive, according to the method decided by a vote of the majority of the membership of the society at a regularly scheduled meeting.
- II. The State Department of Health.
- A. Pays for the treatment of children in the age group, nine to twenty-four months inclusive, only in those counties eligible under the Iowa plan for maternal and child health services.
- B. Helps to obtain local financial support for paying participating physicians for treating babies in the age group, nine to twenty-four months inclusive, in those counties not eligible under the Iowa plan for maternal and child health services.
- C. Provides without cost the diphtheria preventive agent and Schick test material.
- D. Furnishes a public health nurse, whenever one is not available locally, for the purpose of:
1. Instructing lay groups regarding the house to house canvass.
  2. Assisting with the conduct of a program of education by:
    - a. Scheduling talks to lay organizations.
    - b. Arranging for newspaper and other types of publicity.
    - c. Making home visits to families who cannot be contacted by volunteer workers.
- E. Assists with the preparation of publicity material.
- F. Supplies, without cost:
1. A list of names and addresses of children in the age group nine to twenty-four months inclusive.
  2. An estimate of the total preschool population in the county.
  3. Literature.
  4. Certificates of Immunity.
  5. Record Cards.
- G. Mimeographs a sheet on which is listed:
1. The names and addresses of participating physicians.
  2. Information concerning the day and hours during which treatments will be given.
  3. The fee which parents are to pay for the treatment of children older than twenty-four months.
- III. The Lay Cosponsors.
- A. Arrange for group meetings of all organizations interested in child health and protection in the four quarters of the county.
- B. Request an outline of the program by speakers from:
1. The local county medical society.
  2. The state department of health.
- C. Participate actively in the organization and conduct of the program by:
1. Helping to secure the necessary financial support from:



- a. Local tax-levying bodies (boards of supervisors, boards of education, city councils) through individual and collective action.
  - b. Private sources (service clubs, women's organizations, etc.).
2. Assuming responsibility for visiting all families having children in the age group, nine to twenty-four months inclusive, according to the following procedure.
    - a. Make a master list of all children in the age group, nine to twenty-four months inclusive. This list should contain the following information for each child; the parents' name, correct address, the child's name and date of its birth.
    - b. Break up the master list into several smaller lists on the basis of townships or post office addresses. (Check the accuracy of the addresses given on the lists with local postal authorities.)
    - c. Assign volunteer workers to canvass the families in a given area. (Ask the social welfare workers to contact families on relief.)
  3. Arranging for groups of volunteer workers to meet with local or state department of health public health nurse for the purpose of securing:
    - a. The essential facts regarding the need for and value of protective treatments.
    - b. Mimeographed lists containing the names and addresses of participating physicians.
    - c. Literature for free distribution.
    - d. Instruction regarding report of result of home call which should cover date of call, reaction of parent, such as "Family not interested," "Will go to Dr. Jones on May 10th," "Child previously immunized," or "Family not located," etc.
    - e. Suggestions covering revisits which are essential because the family may have forgotten the treatment date or needs to receive additional facts to motivate it. Each worker making home visits should check her list with the local physician after each treatment date in order that she may cross out the names of all treated children. Several days before the last treatment, a revisit should be made to every family which has an untreated child on the original list.
  4. Obtaining after each treatment date, the number of children of preschool age given treatments by the participating physicians.
  5. Reporting, to the State Department of Health, after each treatment date, the number of treated children in the age groups, nine to twenty-four months inclusive, twenty-five to seventy-one months, and seventy-two months and over.
  6. Filing with the State Department of Health at the completion of the intensive drive, a report which indicates the names, addresses, etc., of parents having untreated children in the age group, nine to twenty-four months, inclusive.
  7. Appointing committees to work with the Committee on Immunization of the county medical society and the local or state department of health public health nurse regarding—
    - a. Finances.
    - b. House to house canvass.
    - c. Publicity.
    - d. Transportation.
    - e. Records and reports.
- Such a plan, the department believes, meets the needs for diphtheria prevention in practically all of the cities and counties of Iowa and can be carried out with local resources. The diphtheria toxoid or other preventive agent used will be supplied by the State Department of Health without cost. A public health nurse will also be available. No plan will be approved that does not ensure and maintain the physician to patient relationship and the physician's fee must be paid from local funds.

#### SPEAKERS BUREAU RADIO SCHEDULE

WOI—Wednesdays at 4:30 P. M.

WSUI—Tuesdays at 7:45 P. M.

August 5—Summer Complaints in Children.

August 12—Constipation.

August 19—Is Your Child Ready for School?

August 26—"Autocides."

September 2—Prenatal Care.

# SPEAKERS BUREAU ACTIVITIES

## FEDERAL REFRESHER COURSES

During June and July the Speakers Bureau Committee, through the cooperation of the Children's Bureau of the Department of Labor and the Iowa State Board of Health, presented refresher courses in obstetrics and pediatrics at four centers in Iowa. This work was financed by funds granted under the Social Security Act and in this state was carried out under the direction of the Speakers Bureau Committee.

Courses were held in Washington, where a county health unit has been established, in Clinton, Oelwein, and Garner. Attendance varied at the various centers, with thirty-three enrolled at Washington from eight counties, twenty-two at Clinton from two counties; fifty-six at Oelwein from eleven counties; and twenty-five at Garner from seven counties. Lectures were given weekly for four weeks; half of the three hour lecture being devoted to obstetrics and half to pediatrics. Dr. Philip C. Jeans of the State University of Iowa gave two lectures on the fundamentals of nutrition and one lecture on immunization. Dr. Julian D. Boyd of the State University of Iowa gave one lecture on the proper physical examination of the child. Dr. H. C. Hesseltine of the Chicago Lying-In Hospital gave three lectures on the care of the obstetric patient, and Dr. Roy I. Theisen of Dubuque gave one lecture on this subject.

In order to make these lectures more valuable to those attending the courses, mimeographed outlines or abstracts of each lecture will be sent to every physician enrolled, which he may have for future reference.

Reports on these courses have been that the lectures were very helpful, and that those attending felt that they had benefited. It is possible that more of these courses will be held during the coming year. It is the desire of the Speakers Bureau Committee to present these courses when it can be done efficiently, and the committee will spare no effort to make the lectures practical and usable. Comments on this first course, and the experience gained from it, will be helpful in planning a second series which will touch the fundamental points in obstetrics and pediatrics. Communities that are interested in such courses are asked to write to the Speakers Bureau Committee.

It should be borne in mind that the money used to finance these courses comes from the taxpayers, and for that reason it is only logical that these courses be presented as efficiently and economically as possible, and that the largest number of physicians in each center be reached. The Speakers Bureau Committee has no desire to present these courses unless there is a definite demand for them. If it is the desire of the medical profession in the state to benefit from federal funds which are earmarked for the purpose of refresher courses, the Bureau will be very glad to use its facilities in planning and arranging them. These federal funds provide only for the salaries and traveling expense of the lectur-

ers, and consequently any expense incurred in the community, such as the rent of a hall or similar expenses, must be borne by the members enrolled in the course.

Another point which should be stressed is that these refresher courses are not the same as the regular postgraduate extension courses for which tuition is charged. There are, however, centers in the state which have been unable to finance one of the larger courses, and these places have been given first consideration for the refresher courses because the majority of the expense is taken care of by federal funds. In following this policy, the Bureau is able to give these courses in localities which have not had courses heretofore.

The regular postgraduate courses will be held as usual, with the regular tuition charge as before, and an outline of those planned for fall is given on this page.

## POSTGRADUATE EXTENSION COURSES

The Speakers Bureau Committee will present a course in general therapeutics at Davenport starting sometime in September. The number of lectures has not been set definitely as yet, but the subjects under consideration are as follows:

1. The Present Status of Endocrine Therapy
2. Treatment of Syphilis
3. Modern Cardiac Therapy
4. Diagnosis and Treatment of Common Neurologic Lesions Found in General Practice
5. Radiologic Therapy
6. Diet in the Treatment of Disease
7. Evaluation of Intravenous Therapy
8. Diagnosis and Treatment of Cancer of the Skin
9. The Barbiturates in the Treatment of Disease
10. Principles Involved in the Treatment of Fractures
11. Diagnosis and Treatment of Arthritis
12. Diagnosis and Treatment of Nephritis
13. Evaluation of the Present Knowledge of Allergy
14. Modern Treatment of Diabetes

Extension courses are also being planned for Oskaloosa and Chariton. These will be general in nature, covering both surgery and medicine. Courses may be presented at Mason City and Sheldon, but plans for these have not yet been completed. A course in Cancer will be presented in the eastern part of the state. More detailed information about these courses will be presented in the September issue of the JOURNAL. In the meantime, those interested in attending should write to the councilor of the district and learn from him more about the course. For the most part, they will consist of ten lectures of two hours each, and the tuition fee will be \$10.00 unless otherwise announced.

These courses are general in nature, covering various subjects. They should not be confused with the

(Continued on page 492)



# WOMAN'S AUXILIARY NEWS

*Edited by the Press and Publicity Committee*

MRS. DEAN W. HARMAN, *Chairman*, Glenwood, Iowa

## PROGRAM SUGGESTIONS

Valuable pamphlets that may be secured through the various bureaus of the American Medical Association, and which can be of value to Auxiliary groups when planning next year's program are listed as follows:

- What Science Knows About Cancer.
- Progress Against Cancer.
- Health Inspection of School Children.
- Shall We Pasteurize.
- The Psychology of Progressive Deafness.
- A Century of Progress in Medicine.
- The Community Swimming Pool.
- Byways on the Road to Health (Alcohol and Tobacco).
- Feminine Beautification.
- Cosmetics and Allied Preparations.
- Obesity Cures.
- Patent Medicines.
- Handbook of Sickness Insurance, State Medicine, and the Cost of Medical Care.
- New Forms of Medical Practice.

There is a small charge for most of the above publications. The pamphlets on general health and hygiene by the Bureau of Health and Public Instruction, those on nostrums and quackery by the Bureau of Investigation and those on Medical Economics by the Bureau of Medical Economics constitute a great reservoir of facts which may be exceedingly useful.

## MILLS COUNTY

The Mills County Auxiliary met in conjunction with the Mills County Medical Society at the State Institution in Glenwood, Tuesday evening, July 7.

A number of guests were present and enjoyed a social hour following the presentation of a film on "Anesthesias," and talks by several of the doctors.

## WHY AN AUXILIARY?

The campaign now well under way to form auxiliaries to the county and state medical societies gives point to the question raised in the Wisconsin Medical Journal, "Why An Auxiliary?" We might as well ask "Why a Wife?" says the writer, who dips his pen in effervescent ink and gives us this:

Medical organization went on for nearly a century in a state of single blessedness. Like an old bachelor it never seemed to realize that it was doing many odd jobs which could be done by a helpmate and that its standing in the community was being sorely neglected. Then one spring morning some 10 years ago came a comely lady, who announced herself as Mrs. Auxiliary, rolled up her sleeves, nudged Mr. Medicine in the side, and said, "Shove over—I'm going to pitch in, help get your house in order, and I'm going to be your partner."

The old fellow, unaccustomed to team work, grumbled and still sputters at times, but down in his heart realizes how efficient she has been. During the years she has grown and developed into a buxom housewife, on whom he has learned to depend more and more. She has been helpful in more way than he realizes and she can do more and more for him as time goes on and he learns more to rely on her. Her main job is to improve his standing in the community. He has been a hermit and has covered up his sterling qualities and his good deeds. He has had few contacts with others and she can do much in bringing about a better appreciation of his work and of his worth.—*New York State Journal of Medicine*, October 15, 1935, also *Pennsylvania Medical Journal*, December, 1935.

## SOCIETY PROCEEDINGS

### Floyd County

O. R. Hyndman, M.D., of Iowa City, was the guest speaker for the Floyd County Medical Society when that organization met at the home of Dr. R. A. Fox in Charles City, Tuesday, July 28. Dr. Hyndman spoke on Certain Aspects and Fundamentals of Intercranial Surgery.

### Hancock-Winnebago Society

The tuberculosis survey conducted in Hancock County during June was brought to a close with an all day meeting of the Hancock-Winnebago Medical Society and the Hancock County Tuberculosis Association, held in Garner, Tuesday, June 30. Thirty-three lung patients and nineteen heart patients were examined by the visiting clinicians, Dr. John H. Peck of Des Moines, and Dr. Daniel J. Glomset, also of Des Moines.

### Mills County

The Mills County Medical Society and the Woman's Auxiliary to the organization met Tuesday, July 7, at the State Institution in Glenwood. Specially invited guests at the meeting included Mills County dentists and veterinarians and their wives. The feature of the evening's program was the showing of a motion picture film, New Methods of Anesthesia, after which the members present entered into a general discussion.

### Sixth Councilor District Meeting

The annual gamefest of the Sixth District Medical Society was held in conjunction with a meeting of the Poweshiek County Medical Society at the Grinnell Country Club at Grinnell, Iowa, on Thursday, June 25. For those attending, the afternoon was one of thorough recreation and pleasure. Bridge, golf and shuffleboard were indulged in according to the desires of the individual. In the late afternoon the secretaries, deputy councilors and other officers of the counties represented met for a brief conference on society problems and interests. Dr. Robert L. Parker of Des Moines, secretary of the Society, presided over this meeting. About sixty doctors and their ladies were the guests of the Poweshiek County Medical Society at a delightful dinner. Following dinner Dr. C. W. Ellyson of Waterloo, councilor of the Sixth District, made a few well chosen remarks and introduced William L. Strunk, Ph.D., of Decorah, chairman of the Board of Examiners in the Basic Sciences. Dr. Strunk gave an interesting address on the subject of The Basic Science Law and Its Operation.

### Twin Lakes District Medical Society

At the recent meeting of the Twin Lakes District Medical Society held in Rockwell City, Saturday, June 11, the following officers were elected to serve during the coming year: Dr. T. R. Vineyard of Dow City, president; and Dr. P. W. Van Metre of Rockwell City, secretary and treasurer. Crawford County was admitted to membership in the organization, thus making it a twelve county district.

P. W. Van Metre, M.D., Secretary

### Upper Des Moines Medical Society

The summer meeting of the Upper Des Moines Medical Society was held at the Park Theatre in Arnolds Park, Thursday, August 6, with the following program: Improving Health Work in Iowa Under the Social Security Act, Walter L. Bierring, M.D., of Des Moines; Practical Treatment of the Anemias, Frank I. Heck, M.D., The Mayo Clinic, Rochester, Minnesota; Appendicitis in Children, Edwin N. Miller, M.D., of the Children's Hospital, Chicago; and Newer Developments in the Treatment of Diabetes, E. B. Winnett, M.D. of Des Moines. Dr. Q. C. Fuller of Milford, presided over the evening banquet, after which the address of the evening was delivered by Frank H. Krusen, M.D., of The Mayo Clinic, Rochester, Minnesota. Dr. Krusen spoke on Medicine Keeps Pace With the Machine Age. Dr. George H. Keeney of Mallard is president of the organization, and the committee on arrangements for this meeting consisted of Gerald Henning, M.D., of Milford, Tom Ward, M.D., of Arnolds Park, and Phil Scott, M.D., of Spirit Lake.

### PERSONAL MENTION

Dr. R. M. Sorensen has been appointed director of the re-established County Health Unit at Washington, Iowa, and assumed his duties there July 1. Dr. Sorensen was engaged in the private practice of medicine at Cumberland for several years, and comes to Washington direct from Minneapolis, where he has been taking special courses in public health work.

Dr. M. H. Lynch, who practiced in Atlantic for the past fourteen years, has located in Manning, where he will continue in his chosen profession.

Dr. Robert J. Johnson, a recent graduate of the State University of Iowa, College of Medicine, has opened an office in Iowa Falls.

Dr. Arthur Pattison, a member of the staff of the State University of Iowa, College of Medicine, has left that institution for Oklahoma City, where he will enter the private practice of medicine and surgery.



Dr. John H. Keith announces his association in the practice of medicine and surgery with Dr. F. S. Skinner in Marion. Dr. Keith was graduated from Rush Medical College in 1932, and interned at the Washington Boulevard Hospital in Chicago for two years.

Dr. F. P. McNamara of Dubuque spoke on "Iowa's Cancer Mortality Rate," before the Dubuque Kiwanis Club, Monday, July 13, presenting in detail the possibility of reducing this rate thirty or forty per cent by the full utilization of modern methods of diagnosis and treatment.

Dr. Paul C. Richmond has arrived in Osage, where he will have charge of Dr. Frank W. Lee's practice for the next few weeks, while Dr. Lee is vacationing in the west. Upon Dr. Lee's return, Dr. Richmond plans to open an office of his own, and remain in Osage. Dr. Richmond was graduated from the State University of Iowa, College of Medicine, in 1935, and has just completed his internship at the Missouri Methodist Hospital in St. Joseph, Missouri. Dr. Richmond is also a registered pharmacist, and prior to his medical training, practiced as a pharmacist for several years, in California and Iowa.

Dr. Raymond M. Rice, formerly of Council Bluffs, has accepted a position with the Eli Lilly Company, as a member of their research staff. The invitation was received in view of his preparation of an animated motion picture for the instruction of diabetic patients. At the Indianapolis laboratories he will supervise the making of additional films. Dr. Rice is a graduate of the University of Nebraska, College of Medicine, and has practiced in Council Bluffs for six years.

Dr. Paul F. Marling of Minneapolis, has become associated with Dr. A. F. Walter of Gladbrook, as his assistant in the practice of medicine and surgery. Dr. Marling was graduated from the medical department of the University of Minnesota, and interned at Broadlawns Hospital in Des Moines. Dr. Walter, who is the oldest active practitioner in Tama County, has practiced in that community for fifty-six years.

Dr. A. C. Schach, who for the past three years has been engaged in the private practice of medicine in Burlington, has recently been appointed director of the reorganized County Health Unit for Des Moines County, with headquarters in Burlington. He began his duties June 1.

Dr. John W. Castell, who was graduated in 1934 from the State University of Iowa, College of Medicine, has returned to his home town of Fairfield to enter the practice of medicine. Dr. Castell recently completed two years as an interne in the City Hospital of Binghamton, New York.

Dr. Harold N. Neu of Omaha has arrived in Sac City, where he will be associated with Dr. G. H. Swearingen, as his partner. Dr. Neu is a graduate of the Creighton University School of Medicine.

Dr. W. H. Fairbanks, who has been associated with Dr. J. S. Deering in Onawa for the past four years, has left that community for Vermillion, South Dakota, where Dr. Fairbanks plans to continue the practice of medicine.

Dr. Clare Trueblood has opened an office in Indianola, where he will be associated with Dr. E. E. Shaw. Dr. Trueblood is a graduate of Temple University School of Medicine, Philadelphia, and took special work in psychiatry in the Frankfort Hospital in Philadelphia. His internship was served at the Iowa Methodist Hospital in Des Moines, and for the past several months he has been associated with Dr. J. T. Strawn in Des Moines.

Dr. Dale Cornell arrived in Greenfield, recently from San Antonio, Texas, where he had just completed a year's internship in the Robert Green Hospital. Newly decorated and modernized offices will be occupied by Dr. Cornell, who was graduated in 1935 from the State University of Iowa, College of Medicine. He has also taken special work in obstetrics at the Chicago Maternity Center, and special surgical work under Dr. Beye of the State University of Iowa, College of Medicine.

#### DEATH NOTICES

Mogridge, George, of Glenwood, aged eighty, died suddenly July 22, as the result of a heart attack. He was graduated in 1894 from the University of Nebraska, College of Medicine, at Omaha, and had long been a member of the Mills County Medical Society.

Tallman, Cameron C., formerly of Fairfield, aged sixty-one, died suddenly July 31, at the home of his son in Fresno, California, from hypertension and arteriosclerosis. He was graduated in 1900 from Rush Medical College, Chicago, and at the time of his death was a member of the Jefferson County Medical Society.

#### SPEAKERS BUREAU ACTIVITIES

(Continued from page 489)

federal refresher courses, which deal with obstetrics and pediatrics only. An effort will be made this year to provide abstracts of each lecture. This should add to the benefits to be derived from the course, and if possible, this procedure will be followed henceforth. The Speakers Bureau Committee will be glad to answer inquiries concerning these courses, or to hear from other communities desiring courses.

# HISTORY OF MEDICINE IN IOWA

*Edited by the Historical Committee*

DR. FRANK M. FULLER, Keokuk

DR. JOHN T. MCCLINTOCK, Iowa City

DR. PAUL W. VAN METRE, Rockwell City

DR. TOM B. THROCKMORTON, Des Moines

DR. WALTER L. BIERRING, Des Moines

DR. WILLIAM JEPSON, Sioux City

## A Medical History of Winnebago County

HARRY FRENCH THOMPSON, M.D., Forest City

*"The moving finger writes; and, having writ,  
Moves on; nor all your piety nor wit  
Shall lure it back to cancel half a line,  
Nor all your tears wash out a word of it."*

Would that the writer had the ability adequately and properly to portray the pioneer physicians who first practiced in this community. Coming into the territory, as some of them did, when it was a trackless waste of prairie, marsh and forest, they followed their profession, riding horseback, over hill and dale, guided by the stars at night, and following the dim trail by day, with their complete armamentarium in their saddlebags, and "under their hat." The remedies at their command were few in number, but so thoroughly were they understood, that, by their use they were able to play on their patient as a virtuoso on a violin. Administered as they were with minute instructions and monumental assurance, and accompanied by that supreme confidence which these men were able to inspire, many a patient was carried successfully through serious illness under conditions that would now be considered appalling.

We of this generation are often presented with statistics showing a low percentage of mortality in a given series. No doubt if the record of these older men could be compared with those of today, the mortality percentage would compare favorably with the best of them. They had none of the diagnostic instruments of precision, the assayed tinctures, or the endocrine products at their command. Many of their remedies they prepared themselves from roots, herbs and bark, gathered in the forest and along the river bank. However, with their calomel and rhubarb, their "pukes and purges," many an ailing patient was snatched from the jaws of death and sent on his way rejoicing, to continue his work of preparing the wilderness for those of us who are here today.

Probably the first white man to appear in what is now Winnebago County, was a hunter and trapper, Lee Farlow. There is a possibility that Lieutenant Albert Lea may have passed through the territory, but if he did, he made no stops, other than temporary camps for the night while en route. Lee Farlow came during the winter of 1853 and 1854. The following year, 1855, a few families appeared, some of them remaining as permanent settlers. Farlow spent the winter in the timber, on the east bank of Winnebago River, in what is now East Forest City, and it was here that the first permanent settlements were made. Later, or possibly at about the same time, a settlement was made at Bristol, in Worth County, about twenty miles northeast of Forest City, and a few miles east of what is now Lake Mills. This must have been a settlement of some size, and importance, for Dr. Keeler, the first doctor to come into the territory, located there in 1856. Dr. Keeler was not the first doctor to live in Winnebago County, but he was, without a doubt the first one to practice here.

Dr. James Keeler was born April 9, 1825, in Wallingford, Connecticut, the son of Rev. James and Clarrissa Bessie Keeler. His mother died when he was three months old, and the care of twin babies was left to the father. Rev. Keeler moved to New York state about ten years later, and there at the age of eighteen, Dr. Keeler began his medical education, graduating from the Albany Medical College in 1846. He immediately came to Iowa and for a short time practiced at Toolsboro, Louisa County, and later located at Cedar Falls where he practiced about ten years.



He was said to have been the first physician to practice in Black Hawk County. Dr. Keeler must have been of a restless disposition, for in 1849, during the California gold rush, he thought some of joining the mad scramble, but acting on the advice of his father, did not do so. Two letters, written to Dr. Keeler by his father, dated January 20, 1846, and May 30, 1849, are still in existence and in the possession of Dr. Keeler's grandson, M. D. Keeler of Forest City. Dr. Keeler moved from Cedar Falls to Bristol in 1856, and remained there until 1896, when he moved to Lake Mills, where he died in 1899.

Dr. Keeler was said to have been a public spirited man with diversified interests. He assisted in the organization of Worth County, and filled the offices of county judge and superintendent of schools while the young county was being organized. That he was qualified to fill these positions is evidenced by his graduating thesis, written at the time he received his medical degree. This shows a command of language and a breadth of learning, both wide and deep. He was a man of strong character and deep religious fervor, evidenced by two of his habits; one, he required his sons to memorize every word of their Sunday school lessons; and the other, he donated the proceeds of all work done on Sunday to church purposes. These characteristics were doubtless due to the early teaching received from his father, who was one of the pioneer ministers of the Episcopal church in Iowa. Rev. Keeler organized churches at Muscatine, Clinton, Cedar Rapids, Cedar Falls, and other important places in Iowa. Dr. Keeler was a home man. Books were his closest companions, and here again, we discover the influence of his father. Gardening was the doctor's hobby, and he took great pride in his handiwork. Along this line he always endeavored to have the best and earliest garden in the neighborhood; and they were always his work, and his only, as he would permit no one to have any part in their construction or care.

Probably few, if any, physicians ever did more horseback riding in the practice of medicine than did Dr. Keeler. Black Hawk County, at the time Dr. Keeler practiced there, had no roads, and the only possible means of transportation was astride a horse. One would think that Dr. Keeler considered any other method of reaching his patients as unethical, for about the time roads appeared, he moved further into the wilderness, and located at Bristol, in Worth County, Iowa. The following incident is told of him. "He rode to the country one evening to attend a woman in confinement. He put his horse in the barn and removed the

saddle. After he had gone to the house, his horse for some reason was moved to another stall, and Dr. Keeler was not informed of the change. After his job was completed, in the early hours of the morning, he went to the barn in the dark, saddled what he thought was his horse, and rode home. Later when his boys had been to the barn, they laughingly asked him when he had traded horses. He replied, 'I haven't been trading horses.' Much to his astonishment he discovered he had saddled the wrong horse, a colt that had never been ridden before. 'I thought he seemed a little awkward,' was his reply."

Dr. Keeler continued in practice at Bristol for a number of years, covering a territory with a radius of more than twenty-five miles. No other doctor appeared here until 1868, during which interval Dr. Keeler was probably the only doctor available. In 1896 he moved to Lake Mills, and spent the few remaining years of his life with



JAMES KEELER, JR., M.D.  
1825-1899



his son, C. E. Keeler, who, following in the footsteps of his father was also a physician, and spent his entire professional life practicing at Lake Mills.

William H. and Perigon C. Jones were sons of John H. P. Jones, a native of Wales, who was said to have been a graduate of the London College of Medicine. It is reported that he served for a time as surgeon on board H.M.S. Nimrod, and during the cholera epidemic in Bombay and Calcutta, India. About 1852 he sent his son, Perigon C., to the United States with instructions to look the

country over, and purchase a tract of land, evidently with the idea of establishing an estate, similar to those in England. The young Jones came to Illinois and first stopped in Kane County, later moving to De Kalb County, where a section of land was purchased, as a nucleus of the to-be-established estate. The elder Jones came to the United States in 1852, and for many years practiced in De Kalb County, Illinois.

Both William H. and Perigon C. Jones received their first medical training under the preceptorship



PERIGON C. JONES, M.D., AND FAMILY  
1834-1880

of their father. They doubtless rode with him on his daily rounds, and probably discussed the cases as they became older. Perigon C. Jones was born in South Wales, June 28, 1834. He spent his boyhood and early manhood there, and received a classical education before coming to the United States. As soon as his father arrived in this country, he began the study of medicine with him. He subsequently attended lectures at Rush Medical College, Chicago, and was graduated from the University of Medicine and Surgery, at Philadelphia, in 1872. For a short time he practiced in Brown County, Wisconsin, later joining his younger brother, William H., who had also attended lectures at Rush, but had not graduated. Perigon C. took care of the practice of William H. while the younger man was finishing his medical course at Keokuk, where he was graduated in 1873. The following news item appeared in the

Forest City *Summit*, May 30, 1872: "Dr. P. C. Jones, of this place, has in his possession a set of obstetrical instruments manufactured by Mat Faulkner, at his blacksmith shop; and they really exhibit an amount of mechanical skill seldom attained. Mat is almost a genius in that line." Perigon C. went to Dysart, Iowa, and later to Kansas City, Missouri, where he died about 1880.

William H. Jones was the first physician actually to reside in Winnebago County. He was born in Pembrokehire, South Wales, October 7, 1843. He began the study of medicine in his father's office at the age of sixteen, but when the Civil War broke out he enlisted in Company D, Thirty-ninth Illinois Infantry, and served throughout the entire war. Having been wounded at Chapin's Farm, he was discharged because of physical disability. He then returned to De Kalb County, Illinois, and



WILLIAM H. JONES, M.D.  
1843-1913



resumed his medical studies, and in 1865 and 1866 attended lectures at Rush Medical College. He was married in August, 1866, to Hattie Silkworth, and from this union were born five children, only one of whom is still living, Mrs. Ada (Charles E.) Wry, of Evanston, Illinois.

In 1869 he removed to Forest City, Iowa, and began the practice of medicine, although he did not receive his degree until 1873, when he was graduated from the Keokuk Medical College, Keokuk, Iowa. He returned to Forest City, and continued in practice until March, 1906, when he suffered a stroke of paralysis, which incapacitated



him for the rest of his life. In order that the people living in Winnebago County might continue to have the services of a physician while he was attending Keokuk Medical College, he induced Dr. William Van Dusen to take up his residence here, but apparently the arrangement was unsatisfactory, for Dr. Van Dusen remained but a few months. In the meantime, his brother, Perigon C. Jones, had graduated from the University of Medicine and Surgery at Philadelphia, and in 1872 he came to Forest City and was associated with William H. for about two years. For a short time in 1883 and 1884 a partnership with Dr. H. R. Irish existed. Subsequent to the stroke of paralysis above referred to, his practice was taken over by Dr. Mott, who practiced here but a short time, selling out to Dr. Gavan S. Herbert, who in turn was succeeded by Dr. Thomas Lucast. Dr. Mott went to Boulder, Colorado, Dr. Herbert to California, where he died from accidental gunshot wounds, and Dr. Lucast went to Waupun, Wisconsin, where he died.

Dr. Jones was elected a member of the school board, March 16, 1876, and mayor of Forest City, March 4, 1886. He was an active member of the G. A. R. and filled many of the official positions in Hayden Post during his lifetime. He had a great reputation as a raconteur, his ready wit and vast experience and memory for details made him always welcome at camp fires, and as an after dinner speaker. He died January 12, 1913, and was buried in Graceland Cemetery, Forest City, Iowa, with both Masonic and military honors.

(To be continued)

#### COMBINED MEDICAL PRACTICE OF ONE HUNDRED AND FOUR YEARS IN MONROE COUNTY

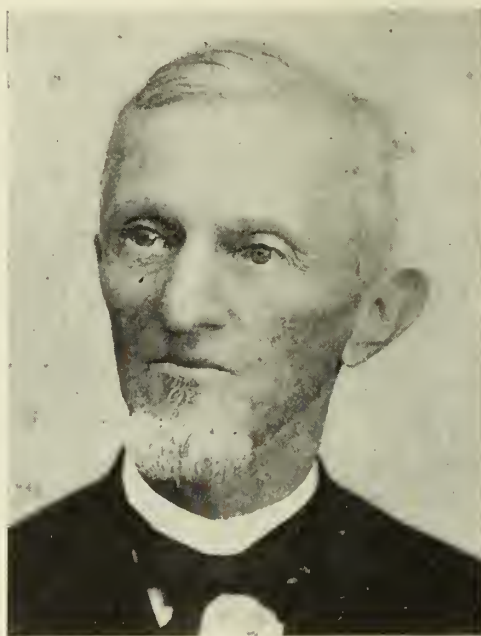
Rarely does one find, in a comparatively new state like Iowa, two generations, father and son, practicing medicine over a period of more than one hundred years. Still more remarkable is the fact that this practice has been maintained in one county, that of Monroe County, Iowa. Dr. John M. Griffin of Des Moines, has prepared the following biographic sketch of the Gutch family.

Dr. William Gutch was born in Wiltshire, England, in 1824. His grandfather operated a pin and needle factory, and the majority of his products were exported to the United States and Australia. In 1840, at the age of sixteen, Dr. Gutch came to St. Thomas, Ontario, Canada, and in 1842 moved to Princeton, Kishkikosh County, Iowa Territory, now Albia, Monroe County, Iowa. He taught the first school in this county, in a log school house, which was a short distance northeast of the present site of Albia. Dr. Gutch practiced medicine while teaching school, since there was no other doctor in the community. The settlement at that time consisted of a log courthouse and a log saloon.

In 1846 and 1847, Dr. Gutch went to Hudson, Ohio, now a part of Cleveland, where he took a sixteen weeks' course in the medical department of Western Reserve University. Nathan S. Davis, Sr., was a

classmate of Dr. Gutch, and a lifelong friend. Dr. Gutch came back to Iowa and practiced medicine until 1853, when he returned to his Alma Mater, and received the doctor of medicine degree in 1854. He again returned to Iowa and located at Blakesburg, Monroe County, where he practiced until 1878, when he moved to the fast growing community of Albia and continued his practice until his death in 1908, at the age of eighty-four years.

During the period from 1842 to 1845 there was a tribe of Sac and Fox Indians on the homestead where Dr. Gutch lived and practiced medicine. An article written for the newspaper by a prominent attorney, Samuel Cohen, in 1889, entitled "Bits of History," states that Dr. Gutch was linked with the early history of Monroe County, and that during his forty-seven years of practice, up to that time, Dr. Gutch had ridden 75,000 miles on horseback, mostly over



WILLIAM GUTCH, M.D.  
1824-1908



trails, since there were few roads in the country at that early time. During his active medical career, Dr. Gutch kept abreast of the times by attending medical society meetings, etc. He took a postgraduate course in medicine and surgery in England at the University of Edinburgh in 1866 (immediately after the Civil War), and again in 1872. During the period from 1850 to 1870, most of the surgery in that territory was done by Dr. Peck of Iowa City, Dr. Sawyer, Sr., of Unionville, and Dr. William Gutch of Blakesburg, Monroe County, Iowa. During the early eighties Dr. Gutch served as secretary of the Des Moines Valley Medical Society for several years. He was in active practice until the day of his death.

Thomas Ernest Gutch, son of Dr. William Gutch, was graduated in medicine from the Barnes Medical College, St. Louis, in 1898, and has practiced medicine in Albia, Monroe County, continuously since that time. He was a member of Troop K, First United States Cavalry, at Fort Grant, Arizona Territory, from 1892 to 1895, leaving the army to take up the study of medicine.

There has been a Dr. Gutch practicing in Monroe County continuously since 1842, and together father and son have practiced in one community one hundred and four years.

# THE JOURNAL BOOK SHELF

## BOOKS RECEIVED

**ABORTION, SPONTANEOUS AND INDUCED, MEDICAL AND SOCIAL ASPECTS**—By Frederick J. Taussig, M.D., professor of clinical obstetrics and clinical gynecology, Washington University School of Medicine, St. Louis. C. V. Mosby Company, St. Louis, 1936. Price, \$7.50.

**BASAL METABOLISM IN HEALTH AND DISEASE**—By Eugene F. DuBois, M.D., medical director, Russell Sage Institute of Pathology. Third edition, thoroughly revised, illustrated with 98 engravings. Lea and Febiger, Philadelphia, 1936. Price, \$5.00.

**BEWILDERED PATIENT**—By Marian S. Newcomer, M.D. Hale, Cushman & Flint, Boston and New York, 1936. Price, \$1.75.

**DENTAL INFECTION AND SYSTEMIC DISEASE**—By Russell L. Haden, M.D., chief of the medical division, Cleveland Clinic, Cleveland. Second edition. Illustrated with 63 engravings. Lea and Febiger, Philadelphia, 1936. Price, \$2.50.

**EXAMINATION OF THE PATIENT AND SYMPTOMATIC DIAGNOSIS**—By John Watts Murray, M.D. With 274 illustrations. Second edition. C. V. Mosby Company, St. Louis, 1936. Price, \$10.00.

**AN INDEX OF DIFFERENTIAL DIAGNOSIS OF MAIN SYMPTOMS**—Edited by Herbert French, M.D., consulting physician to Guy's Hospital, London. Fifth edition, with 742 illustrations, 196 in color. William Wood and Company, Baltimore, 1936. Price, \$16.00.

**MEDICAL MYCOLOGY, FUNGUS DISEASES OF MEN AND OTHER MAMMALS**—By Carroll William Dodge, Ph.D., mycologist, Missouri Botanical Garden. Illustrated. C. V. Mosby Company, St. Louis, 1936. Price, \$10.00.

**MEDICAL PAPERS**—Dedicated to Henry Asbury Christian, from his present and past associates and house officers at the Peter Bent Brigham Hospital, Boston, Massachusetts. The Waverly Press, Baltimore, 1936.

**PEDIATRIC NURSING**—By John Zahorsky, M.D., professor of pediatrics, St. Louis University School of Medicine. With 144 illustrations and seven color plates. C. V. Mosby Company, St. Louis, 1936. Price, \$3.00.

**PHYSIOLOGY OF LOVE**—By Professor Paolo Mantegazza. Eugenics Publishing Company, New York, 1936. Price, \$3.00.

**PSYCHOLOGY OF SEX**—A Manual for Students by Havelock Ellis. Emerson Books, Inc., New York, 1935. Price, \$3.00.

**SYNOPSIS OF CLINICAL LABORATORY METHODS**—By W. E. Bray, M.D., professor of clinical pathology, University of Virginia. Thirty-two text illustrations, eleven color plates. C. V. Mosby Company, St. Louis, 1936. Price, \$3.75.

**A TEXTBOOK OF SURGERY**—By American authors, edited by Frederick Christopher, M.D., associate professor of surgery at Northwestern University Medical School. With 1349 illustrations. W. B. Saunders Company, Philadelphia and London, 1936. Price, \$10.00.

## BOOK REVIEWS

### THE 1935 YEAR BOOK OF OBSTETRICS AND GYNECOLOGY

Edited by Joseph B. DeLee, M.D., and J. P. Greenhill, M.D. The Year Book Publishers, Chicago, 1936. Price, \$2.50.

One is likely to consider that a subject so long a matter of common practice as obstetrics would show little advance from year to year. The survey of the year's literature on this subject as presented in this volume, however, disproves this thought, and emphasizes the importance of constant study and reading if one is to keep abreast of the times. Considerable space is devoted to the newer tests for pregnancy with critical comparative analyses of the various methods proposed. Valuable studies are recorded concerning the management of the pregnant woman with heart disease and other complications. Abnormalities and complications of labor and the puerperium are presented in respect to the newer studies along these lines.

The section on gynecology occupies roughly one-half of the book, and presents the subject both from the medical and surgical standpoints. The single subject commanding the largest amount of space is that of endocrinology. A total of 62 pages is given to the report of the advances in this branch of gynecology during 1935.

The volume is fully indexed and illustrated.

### COLLECTED PAPERS OF THE MAYO CLINIC

Edited by Richard M. Hewitt, M.D. Volume xxvii. Octavo of 1353 pages with 256 illustrations. W. B. Saunders Company, Philadelphia and London, 1936. Price, \$12.00.

Each year the papers prepared by the staff of the Mayo Clinic are collected and published in a bound volume. For the year 1935 the editors assembled 693 articles. Of these 83 appear in full in this volume, 57 are presented by abridgement, and 95 by abstract. The remaining 458 are designated by title with references to the publication in which the original article appeared. The papers which are reproduced are grouped according to systems, those involving the alimentary tract taking first place.

While all of the papers included in the volume have been selected because of their worth and timeliness, those having to do with the ductless glands should make an especial appeal, since the development of knowledge in this particular branch has been outstandingly rapid during the last few years. The physician who finds the stress of practice too great to permit his personal attendance at postgraduate courses will find this volume an acceptable substitute, and if carefully studied, it will materially assist the physician in keeping his knowledge of disease and his practice well abreast of the times.

The volume is illustrated.



**THE 1935 YEAR BOOK OF GENERAL SURGERY**

Edited by Evarts A. Graham, M.D., professor of surgery, Washington University School of Medicine. The Year Book Publishers, Chicago, 1936. Price, \$3.00.

One of the most striking features of the surgical literature of the past year is the large number of articles which have appeared dealing with the newer treatment of peripheral vascular disease. A popular impression concerning operative risks is confirmed by a review of the literature on the mortality of fat and lean patients. With abdominal operations, the mortality among the fat patients was three to four times that observed with thinner individuals.

Noteworthy attention has been given by Norwegian investigators to the subject of intussusception. Addition to the literature on the subject of acute pancreatic necrosis has been made during the year, especially in regard to the favorable time for operations and the use of radium in these cases. Considerable space is devoted to the subject of malignant tumors, citing particularly the experimental work in the causation of malignant growths.

The general plan of the work remains unchanged, in that the literature is classified by systems and organs. No extended bibliography is furnished. The volume is fully illustrated and indexed.

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**INTERNATIONAL CLINICS**

Volume I, Forty-sixth Series. Edited by Louis Hamman, M.D., visiting physician, Johns Hopkins Hospital, Baltimore. J. B. Lippincott Company, Philadelphia and London, 1936. Price, \$3.00 per volume.

In this volume twelve medical conditions are presented in clinic form with case presentations and general discussions. The only surgical clinic offered is on neuralgia paraesthetica. The two closing articles in the volume deal with the progress in medicine during the past year, reviewing particularly the phosphatase activity and calcium and electrolyte metabolism, and the progress of surgery during 1935 as surveyed by Dr. Donald C. Balfour and associates of Rochester, Minnesota.

Outstanding in the medical group of clinics is the discussion of fever in heart disease by Dr. J. Murray Steele of New York and secondary anemia in infancy and childhood by Dr. Kenneth D. Blackfan and Louis K. Diamond of Boston, Massachusetts. The volume is illustrated.

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**THE 1935 YEAR BOOK OF NEUROLOGY, PSYCHIATRY AND ENDOCRINOLOGY**

The Year Book Publishers, Chicago, 1936. Price, \$3.00.

In this volume the current literature for 1935 has been reviewed and is presented in abstract form. Designated as outstanding in the field of neurology and deserving especial attention are those researches

directed toward the diencephalon and the hypothalamic nuclei, because these researches not only are noteworthy in themselves, but open up that field for future research. In the field of psychiatry, the authors cite no single outstanding discovery, but stress particularly the therapeutics of functional psychosis and the advances made in the treatment of general paresis. The field of endocrinology has been a fertile one for research and observation during 1935, and these outstanding contributions are faithfully reviewed in the last section of the book. Most interesting in this section, perhaps, are those reporting observations of the pituitary gland function.

The volume maintains the high standard of previous numbers in this series.

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**CLINICAL HEART DISEASE**

By Samuel A. Levine, M.D., assistant professor of medicine, Harvard Medical School. 445 pages with 97 illustrations. W. B. Saunders Company, Philadelphia and London, 1936. Price, \$5.50.

During the last two decades Samuel A. Levine has made many important contributions to our knowledge of cardiac pathology. These have earned for him an enviable reputation both here and abroad as an able and sane cardiologist. The present monograph might well be entitled "Dr. Levine Looks at Cardiac Diseases," for the volume represents the author's conception of modern cardiology. Included in the book are chapters on rheumatic fever; the development of rheumatic heart disease; diseases of the aortic and tricuspid valves; diseases of the pericardium; angina pectoris and coronary thrombosis; hypertensive heart disease; thyroid and syphilitic heart disease; bacterial endocarditis; congenital heart disease; functional heart disease; paroxysmal rapid heart action; acute cardiovascular emergencies; significance of bronchial and other factors in the production of dyspnea; clinical significance of systolic murmurs; cardiac disease complicating surgery and obstetrics; factors concerned in the prognosis of heart disease; treatment of congestive heart failure; and clinical electrocardiography.

The older clinician who is familiar with Levine's former contributions will find many statements and conclusions which he will recognize as old friends, and many new conclusions which the author has reached which seem eminently sane and logical, but he will not find many opinions to which he cannot subscribe. The neophyte on the other hand who is so fortunate as to pick up this volume as the source from which to obtain his first impression of modern cardiology, will find a delightfully clear, logical, and comprehensive presentation of cardiac diseases as we see them today. Perhaps one may be forgiven for being a bit envious of the younger student who can obtain so much accurate heart knowledge in Levine's clearly and concisely written "Clinical Heart Disease."

D. J. G.

# The JOURNAL

of the

## Iowa State Medical Society

VOL. XXVI

DES MOINES, IOWA, SEPTEMBER, 1936

No. 9

### THE SOCIALIZATION OF MEDICINE— TO WHAT EXTENT IS IT DESIRABLE?\*

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There has been much confusion and misunderstanding during the past few years in discussions of medical economic problems because of inaccurate use of terms. What do we mean, for instance, by "state medicine"? Accurately speaking, state medicine is a system under which the government of state or nation assumes complete control of medical practice. Under state medicine the government not only licenses practitioners, as at present, but it pays them salaries, assigns them to definite duties and directs through its officials and bureaus all of the details of medical practice. The only plan we have in the United States which can be described properly as state medicine is the care of veterans by the federal government. Adoption of a system of state medicine has never seemed imminent in this country. If the time should come when we set aside our present philosophy of government and economics in which the freedom and initiative of the individual are preserved to the highest possible degree, and replace the present system with a socialistic state in which collectivism and centralized control are the main features, then state medicine is inevitable. Medicine is so closely integrated with our entire social structure that it cannot escape revolutionary changes if such changes occur in government or society.

There is, however, another road to state medicine upon which various localities of the United States have already set their feet; namely, the road of health or sickness insurance. It seems a long distance from our relatively restricted efforts at voluntary health insurance in widely separated localities of the United States to a system of state medicine. It has been settled beyond dispute, however, by European experience that voluntary health insurance is inevitably superseded by compulsory health insurance and that compulsory

health insurance invariably necessitates a high degree of governmental control. This lesson from the history of health insurance in Europe should be clearly understood at the present time in the United States when there is much propaganda for passage of health insurance laws. It should be plain to anyone who can understand the lessons of experience that the voluntary insurance schemes that are now being established here are the inevitable progenitors of compulsory health insurance and finally of state medicine.

There has been confusion also in our understanding of the terms "health insurance" and "sickness insurance." In this country they have been used interchangeably but sickness insurance is a more accurate term than health insurance. When the German system of compulsory insurance was adopted in 1883 it was called sickness insurance because it aimed to furnish cash benefits and medical care when people were sick. When England passed its compulsory insurance law in 1911 they called it health insurance, its advocates alleging that the operation of the law would reduce the mortality rate and lessen the incidence of sickness. I need hardly tell you that nothing has been more thoroughly established than the fact that so-called health insurance is in no sense a public health measure; it neither lowers the mortality rate nor reduces the amount of sickness. For reasons that are now well known to everyone, the operation of sickness insurance of either the voluntary or compulsory type actually increases the incidence of sickness to a very considerable degree.

The terms health insurance and sickness insurance are misleading in another sense, in that the system which they designate is not insurance in the proper sense of the term. Insurance as we have come to understand the term describes a contract to pay a certain designated sum as indemnity upon the occurrence of an event of relative infrequency and of major importance, the rate of occurrence of such events being based upon actuarial tables compiled from experience. There is no element of compulsion by the state nor partici-

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pation by the state in the payment of premiums. Contrasted with this well understood and sound insurance principle is sickness insurance in which the events are of frequent occurrence and in the majority of cases trivial in nature; in which not only cash indemnity is provided but also medical care, unspecified both as to quantity and quality; in which there is not, nor can there be, any sound actuarial basis; in which there must be compulsion by the state to assure continued solvency of the insurance fund; and in which both the employer and the government must augment the premiums exacted by law from the person insured. Careful study of the so-called model law prepared and distributed to every legislative body in the United States by the American Society for Social Security (the Epstein Bill), must convince one that compulsory health insurance is not really insurance. It is a system of taxation which exacts a wage tax from the employee, a pay-roll tax from the employer and a general tax from all tax-paying citizens, through which the cost of caring for the sickness of a relatively small and restricted class of individuals is spread over society in general.

Coming to what I have chosen for the subject of this address, "The Socialization of Medicine," there is probably no term with regard to which more confusion or misunderstanding exists. As physicians we are inclined to think and speak of "socialization of medicine" as a wholly evil and undesirable process. Our view depends largely upon our definition of socialization. The word has two quite dissimilar meanings. In one sense to socialize means to render social, to adapt to the uses of society; in the other sense to socialize means to render socialistic, to adopt the principles and methods of socialism. In the first sense the socialization of medicine has been taking place gradually over a long period. There are many needs in modern society for the prevention of disease and the care of the sick which the individual physician cannot supply. The community or state must support a department of health, must insure a pure food and water supply, the prevention and care of contagious disease and the hospitalization of the indigent and the insane. Within recent years many communities have extended their preventive work to include medical and dental inspection of school children and the support of prenatal and children's clinics. Vaccination against smallpox has for many years been provided by public health departments and recently there have been added preventive inoculations for diphtheria. All of these and numerous other services are being provided at public expense in order to adapt modern medical advances to the complex

needs of modern civilization. The medical profession is not only not opposed to socialization along all of these lines of public health but actively supports every measure directed to such ends. At just what point socialization in the second sense begins is to some extent a matter of opinion. In the opinion of the majority of the medical profession all of those methods of medical care comprised under the general terms health insurance, sickness insurance and state medicine depend upon the adoption of the principles and methods of socialism, and the profession is opposed to them.

The opposition of the profession to health insurance is based upon what we believe to be sound and defensible grounds. Contrary to the general impression that its proponents seek to convey, health insurance at its best is no panacea for present ills. We indict it first on the grounds of its inadequacies and limitations; it offers no solution for the medical care of the indigent; it is not a public health measure in that it does not lower the death rate nor the incidence of sickness; it is limited in its application to a restricted portion of the population; and it would be difficult or impossible to apply it to the rural population in a country so widespread and with such diverse conditions as are found in the United States.

Our next indictment against health insurance is on the grounds of the evils which grow up with it and which seem inherent in the method. Our main objection to health insurance is that it lowers the quality of medical service received by the people. That this is true is based upon an intimate knowledge of the operation of voluntary health insurance in the United States and the compulsory systems of Europe, including the well-known panel system of England. It is our conviction that the essential personal relationship between patient and physician is difficult or impossible to maintain under a health insurance system. This is true notwithstanding provisions of the law to the contrary. Under insurance medicine medical progress is hampered and the medical profession deteriorates. This is due to many causes, among which are lack of incentives to good work by medical men, the interference with and standardization of practice required by insurance companies and government bureaus, and the "mass" practice that is not only encouraged but necessary under insurance medicine.

Finally, we indict health insurance on the grounds that it adds greatly to the costs of medical care. It has been claimed by the advocates of health insurance that the costs of medical care would be lowered because of better standardiza-

tion and organization. On the contrary, there is no doubt that the total costs to the people under a compulsory insurance system would be greatly increased over those prevailing at present. This is due to the increase of sickness that inevitably accompanies insurance medicine and to the heavy costs of administration. It requires 34,000 people to administer Germany's sickness insurance system. Study of the model bill of the American Society for Social Security must convince one that the costs of administration of the proposed system added to present costs must greatly increase the total costs of medical care.

The medical profession in the United States today does not believe that it should be charged with maintaining a reactionary or obstructionist attitude because it opposes this type of socialization of medicine. It is the belief of the majority of physicians that organized medicine must constantly oppose everything which in its opinion will hamper medical progress or lower the quality of medical care. It must be our constant care to reconcile tradition with freedom of thought and independence of action. I believe then that I correctly state the present attitude of American physicians when I say that they believe in the socialization of medicine when it is defined as the adaptation of medical facilities to the changing society of modern life. It is their belief that this adaptation is to be accomplished not by revolutionary methods nor by any change in our economic and social system which necessitates substitution of collectivism and authoritarianism for our present system based upon individual initiative. They believe that the way of true progress in society is the slow and laborious method of holding tenaciously to all that is good in the past, building upon it and carefully modifying it to fit new conditions as they arise. They look with distrust upon panaceas.

Based upon the conviction that this is the proper method to pursue, the medical profession in many localities in the United States is sponsoring various plans to adapt medical care to particular community needs. I wish to speak briefly of the plans which are developing in Washington, D. C., because I am familiar with them. The so-called "Washington Plan" is simply an adaptation of plans which have been developed in other cities, especially in Detroit and in Dayton, Ohio. There are, however, at least two unique features in the Washington Plan and upon these features its success largely depends. The keyword in the plan is cooperation. It was initiated through the cooperation of the Medical Society of the District of

Columbia, the Community Chest, the Council of Social Agencies and the hospitals of Washington. It was further developed to its present state by the additional cooperation of the Dental Society of the District of Columbia, the colored Medical and Dental Societies and the Board of Public Welfare. It has received the active support of the Board of Trade and other business organizations and it enjoys the confidence and respect of all classes of citizens. It is in fact a community project under the active leadership of the organized medical and dental professions.

The second important element in the plan is the combination of several different agencies into a consolidated organization, all of the agencies being housed in the same building and under the control of one individual called the coordinator. The center of the plan is the Central Admitting Bureau which is now an agency of the Community Chest but with a majority of its board of directors members of the medical society. The Central Admitting Bureau defines the status of all applicants to the Bureau through its social service department and arranges for the hospital and clinic care of the partially indigent who must receive help from the Community Chest. The second agency in the plan is the Permit Office of the Bureau of Public Welfare. Being housed in the same building as the Central Admitting Bureau the totally indigent are referred directly to it and are cared for in the proper municipal institutions or free clinics. The third agency is the Medical-Dental Service Bureau which is controlled by a board of directors composed of members of the medical and dental societies under the immediate direction of the coordinator of the entire project. The entire plan is therefore comprehensive in its scope, caring for the totally indigent through the Board of Public Welfare, the partially indigent through the Central Admitting Bureau and the people of low incomes who need to avail themselves of a partial post-payment plan through the Medical-Dental Service Bureau. The Washington Plan has had several excellent results. It has brought about a friendly relationship in cooperative effort between the hospitals, various community agencies and the organized medical and dental professions. Through it the community and the hospitals have accepted the medical profession as the natural leader in health affairs and in the future it will furnish a center for the solution of any new problems that may arise. One of its most valuable by-products will be the establishment of a body of statistics which will in a few years accurately define the indigent sick problem of the community.



The plan has in it no insurance feature of any kind.

There has developed in Washington quite separately from the organization I have just described, another organization called Group Hospitalization, Inc., also sponsored and endorsed by the Medical Society of the District of Columbia. It fully complies with the rules laid down by the American Medical Association. Insurance for medical care is absolutely excluded in every form; it is confined strictly to provision for hospitalization. Group hospitalization is another term about which there has been much confusion of thought. If it is confined as it should be to furnishing only hospitalization to the complete exclusion of medical care in every form, the evils of health insurance cannot develop from it. Recently certain types of medical care such as radiology and clinical pathology have been included in group hospitalization plans in various localities. Radiology has been defined in "Essentials for Approved Radiological Laboratories" by the Council on Medical Education and Hospitals of the American Medical Association as the "practice of medicine." Its inclusion in group hospitalization plans is wholly pernicious and should be recognized by the medical profession as the opening wedge for the practice of medicine by hospitals. It is true that group hospitalization differs from our old accepted types of insurance in that it does not establish large reserves but it compensates for this by adhering strictly to employed groups with certain restrictions as to age, thus limiting the risk. Group hospitalization differs fundamentally from health insurance. It contracts, for a certain definite monthly premium, to furnish a limited number of days of hospitalization for which it contracts with the hospital at a fixed rate. This is in contrast to health insurance which contracts to furnish medical care indefinite both as to quantity and quality.

There is a certain danger in group hospitalization if it gets out of control and begins to include medical care in its benefits, but this will not happen so long as the medical profession remains in control. It is far better for the organized medical profession to organize and control the group hospitalization plan than to permit commercial organizations to develop similar plans for profit in the community. It is along these or similar lines in many communities over the nation that the medical profession is trying to guide the socialization of medicine and to prevent the pernicious methods of socialism from gaining a foothold.

I have spoken of the necessity for cooperation in carrying out any community project. I wish in closing to call your attention to the possibility

of securing cooperation in another direction to combat the tendency toward compulsory health insurance which has been so menacing in the past few years. The great majority of business men, bankers and lawyers are opposed to socialism. They do not believe in its philosophy and they are violently opposed to its practice. It has never been brought home to them that compulsory health insurance is pure socialism in action and many of them are either indifferent with regard to it or they favor its adoption. It would be the part of wisdom for the organized profession to carry on a continuous campaign to secure the cooperation of the business man in the battle against compulsory health insurance. If he can be convinced of what is undoubtedly a fact, that the establishment of health insurance is simply the opening wedge for adoption of other forms of socialism, the medical profession will gain millions of powerful allies.

The propaganda for health insurance and other forms of medical socialism is continuous and unrelenting. The profession must make its opposition felt in every legitimate way, even though its members are temporarily classed as obstructionists and reactionaries. The profession and the public owe much to the American Medical Association for its consistent and courageous opposition, through its House of Delegates, its bureaus and its officers, to the organized attempt to force a socialistic system of medical care upon the American people. We of the rank and file of the profession owe it to ourselves and to our patients to cooperate with and support the Association in its program. We can do our part in this program in our local communities by actively taking a part in our local medical society and by fostering a friendly spirit of cooperation among the people and the lay organizations of the community. This latter can be accomplished best, not by constantly objecting to health insurance, but by carrying out plans such as Detroit, Dayton, San Diego, Oakland, Washington and many others have found helpful. When the medical profession of your community becomes known for its support of the Public Health Officer and the Board of Public Welfare and its organization of plans to help the indigent and low income groups to secure good medical care, then its voice will be listened to with respect when it objects to anything it considers harmful. At the same time we have the satisfaction of knowing that we are assisting in that beneficial type of socialization of medicine which consists in adapting medical facilities to the needs of the people.

## Symposium on Intracranial Lesions

### THE CLINICAL MANIFESTATIONS OF INTRACRANIAL LESIONS\*

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A consideration of the diagnostic possibilities in patients suspected of suffering from intracranial lesions would necessitate a complete review of this entire subject of neurology. The scope of this paper is to present briefly, from the point of view of the neurologist, the various signs and symptoms commonly associated with intracranial lesions and to discuss more fully some of those observations which may usually be considered of the greatest value in early diagnosis.

For all clinical purposes, all expanding lesions situated within the skull may be regarded as tumors, the symptoms of which arise by reason of an alien mass within a rigid area already adequately filled with nervous tissue, cerebral spinal fluid and membranes. Such masses behave differently according to their different cellular constructions. All tumors may be regarded as slowly growing foreign bodies which, sooner or later, according to their situation within the cranial cavity, produce clinical phenomena which render their diagnosis possible. The symptoms of intracranial lesions may, for convenience, be divided into, first, those which result from increased intracranial pressure; and, second, focal signs produced by the localizing disturbances of cerebral functions. The syndrome of headache, papilledema and vomiting is still held widely as the classical triad of symptoms necessary for the diagnosis of brain tumor. These signs may be utilized when present or ignored when absent as they are not equally constant. In one series of cases, Brain<sup>1</sup> reported headache present in 88 per cent, papilledema in 75 per cent, and vomiting in 65 per cent. All of these symptoms were present in only 60 per cent of the cases.

#### GENERAL SYMPTOMS

Headache is the most constant symptom of intracranial tumor. It generally appears at some period or other, sooner or later. It is probably due to stretching of the dura which, like the parietal peritoneum and the parietal pleura is a sensitive membrane. Its severity is sometimes intense. Usually, it is a constant, dull pain with super-added paroxysms of agonizing intensity. It commonly occurs on waking in the morning or during the night. The pain may be either diffuse or localized. It may be the result of local pressure of the

tumor upon the dura and calvaria, in which case it is often associated with localized tenderness of the skull over the tumor on percussion. It may be due to generalized intracranial pressure, the result of the tumor. It may be referred pain associated with superficial tenderness extending over a considerable portion of the head and even down the back of the neck and shoulders. It may be due to the direct pressure of the tumor upon the trigeminal nerve, especially the gasserian ganglion, in which case the pain is likely to be unilateral and referred to the skin supplied by one or more divisions of the trigeminal nerve. However, too much stress should not be laid on the existence of localized pain unless it is accompanied by focal signs. Tumors in the posterior fossa often produce frontal headache. Sharp or boring bitemporal pains are occasionally associated with pituitary tumors. The headache of cerebral abscess, however, often does correspond fairly closely with the situation of the abscess, and may be associated with local tenderness or percussion of the skull. The headache of intracranial tumor or abscess is intensified by excitement, exertion, straining, coughing or vomiting. Constancy of the headache is a sign of grave prognosis. A headache confined to one side of the head, especially if it is associated with localizing tenderness, is a point in favor of localizing the tumor upon that side. Occipital headache, with a tendency to radiate down the neck, is probably the result of a subtentorial lesion. Finally, in a number of cases not only is headache of no localizing value but is not present at all and, in many cases, not until late in the course of the disease.

Papilledema, or choke disc, detected by the ophthalmoscope, should be looked for in every case of suspected intracranial tumor. It should be borne in mind that, while the presence of papilledema is one of the strongest evidences of intracranial pathology, no weight should be laid to its absence if other signs point to an intracranial growth. The pressure or absence of papilledema and its severity may be an aid to the localization of the tumor. It is almost constant in tumors of the temporosphenoidal lobe, cerebellum and fourth ventricle, but is absent in about half of the cases of subcortical and pontine tumors. Papilledema is likely to be late in developing in cases of pre-frontal tumors. The severity is greatest in cases of cerebellar tumors. On the whole, the greatest edema tends to be on the same side as the tumor, especially in frontal and cerebellar tumors.

Vomiting, when a symptom of intracranial tumor, occurs characteristically like headache in the early morning or late at night. At first it may be infrequent, but tends to occur more often as

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the tumor grows. In the later stages, the patient may vomit several times a day. There is considerable evidence to show that vomiting in patients with a cerebral tumor bears no direct relationship to the proximity of the tumor to the medulla, as might have been expected, but that the symptom is due to a hydrocephalus, being in some way a response to a rise in intracranial tension. Vomiting is an early symptom in patients with tumors of the cerebellum, midbrain and, in those patients usually precedes papilledema. It is less frequent with tumors of the temporal and parietal lobes and of the pons and is not uncommonly absent or very late in developing in tumors situated in the frontal lobe.

Epileptiform convulsions are valuable signs when they occur for the first time in an adult. In some cases, generalized convulsions precede the diagnosis of brain tumor by a number of years. Every case of so-called "idiopathic epilepsy" should be considered potentially a brain neoplasm. At regular intervals, in the treatment of these patients, neurologic and ophthalmologic examinations must be recorded. With other possible etiologic causes ruled out, it frequently becomes necessary to make a ventriculogram. Convulsions, unless they are definitely Jacksonian, with a constantly recurring pattern, may be of no localizing value. Dizziness and vertigo may develop from changes in the peripheral vestibular organs; a choked labyrinth. It must be remembered that the communication between the intracranial cavity and the internal ear allows for transmission of pressure. Bradycardia is a familiar symptom of increased intracranial pressure, but it is less common in cases of cerebral tumor than in those of cerebral abscess, being the result usually of a rapid rise of intracranial pressure. Tachycardia is almost always to be observed in patients with a tumor in the posterior fossa of the skull. The blood pressure of patients with an intracranial tumor is not, as a rule, above normal. It is frequently somewhat subnormal, especially when the tumor occupies the posterior fossa.

Of other general symptoms, psychic and mental changes occur frequently. Drowsiness, yawning, clouding of consciousness and stupor are rather common, and increase in intensity as the disease progresses. Loss of memory, changes in personality, moral defects, general dilapidation, delusions, hallucinations and delirium, manic outbreaks and all signs of organic psychosis may appear. In review of the general symptoms, we see that the individual who suffers from repeated headaches which are most common in the early morning, increasing in severity and frequency

with no apparent cause, are brain tumor suspects. Also, adults who develop epileptiform convulsions are especially to be suspected of harboring such a lesion and should be carefully examined.

#### LOCALIZING SYMPTOMS

Localizing symptoms are sometimes absent and the exact site of the tumor may only be revealed by a postmortem examination. In most cases, however, focal symptoms develop which enable us to determine the position of the growth with greater or lesser precision. The secret of success in this field lies in an appreciation of the meaning of small defects of function, correlated with the knowledge of intracranial anatomy and physiology. Accurate neurologic studies must be made, and especially important is a careful history of the chronologic developments of symptoms, because, later in the course of the disease, the dilation and growth of the tumor make accurate localization difficult. In some cases, we can only form an approximate idea as to the site of the disease. For example, if a patient with headache, vomiting and papilledema develops a gradually increasing left hemiplegia, all that we are justified in diagnosing is a growth somewhere in the right cerebral hemisphere, probably in the neighborhood of the motor tract. The occurrence of a cranial nerve palsy is always suggestive of a lesion at the base of the brain. For example, a unilateral palsy of the external rectus has little or no localizing value since the sixth nerve may be paralyzed by a growth anywhere within the skull, whether the mechanism is that of traction or downward displacement of the cerebrum. On the contrary, bilateral sixth nerve paralysis is a valuable sign of an intrapontine lesion.

Localizing symptoms may be masked or concealed as in some cases of occipital tumors in which, if the papilledema progresses to atrophy and blindness, the hemianopia, which might have led to a correct diagnosis, becomes lost. Localizing signs, to be of value, should generally appear early. Absence of focal signs suggests that the tumor is above the tentorium, since subtentorial growths almost always produce focal signs early in their course. Deficiencies in the psychic, rather than the somatic, field suggest frontal lobe tumors. These cases frequently go unrecognized for long periods of time. The patients lose their normal emotional tone, they are inattentive and lack interest; may become untidy and careless. Their speech may become obscene and is almost invariably facetious. This condition is not to be confused with the drowsiness and apathy of increased intracranial tension which can usually be erased by reduction in the intracranial pressure.

Of the chief localizing symptoms, tumors of the motor cortex are the easiest to recognize clinically. In these, in addition to the general signs of intracranial tumor, we usually observe two classes of phenomena, irritative and paralytic. Slight pressure causes venous congestion with irritation. More severe pressure results in local anemia with paralytic phenomena. The irritative phenomena consist of Jacksonian fits originating from the motor cortex that happens to be chiefly implicated. It usually consists of a tonic spasm followed by clonic jerks, and it may be strictly localized to a small group of muscles, or it may spread from them to other muscle groups. They should be of a constantly recurring pattern to aid in localizing the lesion. Jacksonian convulsions differ from ordinary epilepsy in that the patient usually retains consciousness all the time and can study his own fit. Paralytic phenomena in tumors of the motor region consist in monoplegic weakness of the convulsed muscles during the interparoxysmal periods. Tumors of the precentral or motor area, if extending backward against the rolandic fissure to the postcentral convolution, are usually associated with the sensory aura of the affected limb.

Pituitary neoplasms, as a rule, are accompanied by a bitemporal hemianopia. As the tumor assumes greater dimensions, total blindness due to a complete optic atrophy may result. Ophthalmoplegia, exophthalmus and anosmia may also be present. Constitutional disturbances from the disordered activity of the gland may result in dyspituitarism. Tumors of the posterior cranial fossa usually compress the pons and medulla, push them out of place and thereby involve some of the cranial nerves on one or both sides. If the cerebellum is involved there is ataxia, vertigo, a reeling gait uninfluenced by closure of the eyes, and nystagmus. Tinnitus, defective hearing, vertigo and nystagmus indicate involvement of the cochlear and vestibular branches of the acoustic nerve.

If the tumor compresses the medulla, dysarthria, dysphagia, aphonia and hemiplegia will occur, depending upon the degree of damage. Radiograms of the skull are of diagnostic value in some cases. Thus, pituitary tumors bulging downward in the sella turcica may be recognized. Calcification of a suprasellar cyst may also show nodular opacities above the level of the sella. Calcification of the pineal gland, sufficient to be recognizable by x-ray, occurs in about 50 per cent of normal adult brains. Sometimes the position of the calcified gland can be utilized for purposes of localization.

In the presence of increased intracranial pressure, encephalography is the procedure of choice in cases in which the most careful ophthalmologic

and neurologic methods fail to demonstrate satisfactorily signs of the lesion. This would include unlocalized brain tumors, brain abscess, basal arachnoiditis or any condition causing a blocking of the ventricular system. Spinal fluid examinations, aside from determining the amount of intracranial pressure, is of little help. An increase of protein content, a moderate pleocytosis and xanthochromia, may suggest the involvement of the lateral ventricles but, otherwise, is generally a poor lead to diagnosis. It is well to emphasize that one should be extremely careful in making lumbar punctures in those cases, especially when the tumor is located in the infratentorial region, because of herniation into the foramen magnum.

Elsberg<sup>2</sup> has developed a technic for the diagnosis of supratentorial tumors by the olefaction method. He claims that the cortex, optic thalamus and corpus callosum must be included in the olefactory spheres. Interference with the normal function of these areas produces disturbances in the sense of smell which must have a different character when different areas are involved. Therefore, with the appropriate and sufficiently sensitive method for testing the sense of smell, it should be possible to discover olefactory patterns in expanding lesions in different parts of the brain. He has devised a procedure which consists of the injection of odors, namely, citral and coffee, into the nasal passages during a short period of voluntary cessation of breathing. The result of the test is determined by the degree of fatigue produced by the different odors and the effect of the injection of an odor into one nasal passage upon the olefactory acuity of the other side. In intracranial tumors and large dural growths that have been buried in the brain, the minimum identifiable odor is not raised, but the duration of fatigue is prolonged on the same side as that of the neoplasm.

#### DIAGNOSIS

In the diagnosis of intracranial lesions, there are a few conditions which confuse us more often than others. One of the first conditions to consider is renal disease in which there may be headache, vomiting and papilledema, sometimes associated with transient hemiplegia or monoplegia. The diagnosis depends upon the examination of the urine, blood pressure and the blood urea. Cerebral abscess does not often give rise to difficulty, because there is usually a history of disease of the ear and sinuses, abscess of the lung or fracture of the skull. Hydrocephalus following meningitis should not give rise to difficulty, but sometimes hydrocephalus complicates disease of the middle ear. Multiple sclerosis, if it begins with



optic neuritis, and if the first patch is in the pons and cerebellum, may lead to a temporary erroneous diagnosis. Acute or subacute encephalitis may be accompanied by choked disc and be mistaken for tumor. Neurosyphilis may simulate tumor in several ways. The early mental symptoms of a tumor sometimes resemble those of general paresis and, in both conditions, epilepsy may occur. The history, the general mental picture, the pupillary signs, the course of the disease and, especially, the serology, attest the diagnosis. Cerebral vascular disease, unassociated with renal changes, produces an infinite variety of clinical signs which may resemble cerebral tumor and it is probably the frequency of vascular disease which makes the diagnosis of cerebral tumor much more difficult in middleaged and older people.

In conclusion, nothing is more important in the early diagnosis of intracranial lesions than a carefully taken history, with particular attention being given to events of probable bearing extending over a period of time rather than weeks. The earliest manifestations are frequently the most important findings elicited on examination. Careful and repeated examinations of the patient, with each examination moderately complete, will in a great majority of cases bring us to a correct diagnosis.

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### CERTAIN ASPECTS AND FUNDAMENTALS OF INTRACRANIAL SURGERY\*

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#### SURGERY APPLIED TO EPILEPSY

The present era of medicine can be said to be characterized by increased opportunities for learning and increased ambition on the part of students and practitioners. Research has ceased to be an eccentric desire. It has become an obligation. It no longer suffices that a surgeon be the mechanical partner of an internist overseer. Rather he has acquired an understanding of clinical syndromes, pathologic physiology and gross pathology in the living, that places him in a fairly self-sufficient position concerning those surgical disorders that fall within his domain, and this, of course, is as it should be. The disciples of neurologic surgery were not long in adopting this

trend to such an extent that in present day neurosurgical training, if there is any imbalance, it will likely prove to be in favor of neurology and physiology. Such an imbalance though, providing all the forces are not on one side of the scale, is without doubt for the better health of the profession, and indeed with so many broad and involved fields of knowledge bearing upon the nervous system, the brevity of a single span of life becomes a natural hazard.

This prologue is in point of introducing the first topic of discussion, the renewed interest and advanced thought in one of the oldest and most fantastic afflictions of which we have record—epilepsy. An epileptic seizure is generally regarded as a motor convulsion. Stopping there is comparable to the dog that barks at the wheel of a car not being conscious of the man in the driver's seat. The obvious motor response is only a part of the seizure. Sensory phenomena and so-called *aurae* are a most important part of the same process. The seizure as a whole is the result of an involuntary discharge of nuclear matter, probably always of the cerebral hemispheres. The forces and mechanism of this discharge are not understood. However, the seizure is evidently always initiated in some focus of the brain that has a discharge threshold lower than normal. This focus is spoken of as the firing point.

Almost every conceivable chemical, metabolic and physiologic disorder, spontaneous or induced, has at some time been thought to be the responsible factor in epilepsy. The probability is that any one of these disorders serves only as the hammer that strikes the fulminate cap at the firing point. If this is true, our chief obligation is to localize the firing point and eliminate this, if feasible. Localization and the successful elimination of the focus have therefore become the keystones of the new hope of dealing with individual problems. If organic pathology is present, the problem becomes far simpler, because one has recourse to many diagnostic methods. The seizures become of secondary importance here, and are regarded only as symptoms with the supposition that they will cease after elimination of the pathologic tissue, and this is most often true. However, when no organic pathology can be demonstrated, localization of the firing point can be accomplished only if we have a clear understanding of cerebral function, or rather the relation between function and anatomic counterpart. To this end, Foerster in Germany, and his disciples, chiefly Penfield in Montreal, are contributing very significant data. These consist on the one hand of a correlation of detailed studies of the seizure pattern with pathology, and on the

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other hand of the electric stimulation of the cortex of many conscious patients. Time does not permit a discussion of the information that has been derived from these sources, but suffice it to say that a close analysis of the subjective and objective components of the seizure, the march of the individual seizure, and the history of their chronologic development may be of utmost localizing value.

When the abnormal discharge is initiated at the firing point, the epileptic seizure has begun and its manifestation will be in keeping with the function of that part of the brain. The aura may be quite specific. The discharge may not progress any further, and thus constitute the types in which there is only a blank stare or momentary sensations. It may progress a short distance and constitute a sensation followed by some involuntary coordinated movement such as head and eye turning. In these examples of so-called petit mal attacks there is no loss of consciousness. The discharging force may progress to involve such a large proportion of the brain that it exhibits itself as a disordered welter of motor, autonomic and undoubtedly sensory reactions that must indeed be a terrifying experience to the patient. This so-called grand mal attack is associated with unconsciousness and exhaustion, and, at times, transient paralyses in the form of aphasia, blindness or motor loss. The latter is spoken of as epileptic residual and is due to a functional devastation of nerve cells left in the wake of the mysterious force that has transgressed the region. The rate with which the discharge spreads may also vary, as all of us have observed in the Jacksonian types, and it is an unfortunate circumstance that in many of the grand mal types the spread is so rapid that neither patient nor observer has an opportunity to study a pattern that would be of localizing value. It is also true that those afflicted with petit mal seizures will occasionally exhibit a grand mal attack indicating a variation from time to time in the resistance threshold to the progress of the discharge. Seizures do not tend to subside spontaneously but rather to increase in frequency and severity as time goes on. Hence the epileptic seizure should be looked upon as a dynamic event subject to detailed analysis from its beginning to its end and most of all should not be lightly dispensed with as being just a petit mal or a grand mal convulsion. I would dare say that the terms petit mal and grand mal have done more to stunt the growth of a better concept of epilepsy than any other one factor.

While these studies are in progress, as might be suspected, many instances of epilepsy on the

basis of organic pathology are being brought to light, and the patients treated successfully. Particularly striking among these are the posttraumatic lesions and early tumors. Thus, the propaganda concerning epilepsy from the few clinics which have grown enthusiastic is far from having been in vain. Practicing physicians who have been following these advances, have referred many patients for study, a high percentage of whom have proved to have a telltale and remedial organic lesion that was responsible for a symptom complex; a symptom complex that because of a tradition and a name would have otherwise relegated the unfortunate individual to the limbo of pitied and forgotten patients. A study of seizure patterns has two values. It not only serves as a means of localizing pathologic foci, but also is of extreme value in ascertaining facts concerning the function of the cerebral cortex. For it is here *par excellence* in this experiment of nature that we have an exhibition of the effects of cortical stimulation. I would like to present in this connection three patients who will serve to illustrate some of these principles.

Case 1. W. C., eighteen years of age, was referred to the University Hospital by Dr. R. J. Hennes, of Oxford, in September, 1935. Petit mal seizures began nine years ago when the patient was nine years of age. At first they were mild, consisting of a blank stare and occasionally of perseveration or the repetition of a phrase over and over. These attacks progressed in frequency and severity until on this admission to the hospital he presented eye and head turning to the left with wrinkling of the left face every fifteen to twenty minutes. It is interesting to note that a sustained ankle clonus was elicited on the left only during his seizures. He had had several grand mal seizures but in no case had ever experienced an aura. These considerations localized the firing point to the right premotor or frontal adverse field. There was no tumor syndrome of increased intracranial tension and an encephalogram revealed only a questionable filling defect in the anterior tip of the right ventricle. Exploration was advised with the diagnosis of a non-deforming astrocytoma of the right frontal lobe. The parents felt that there was not enough proof of this and took him home. He grew rapidly worse and at the behest of Dr. Rohner, of Iowa City, was returned. He was drooling at the mouth, and practically in status epilepticus with complete flaccid paralysis of the left side of the body, although the latter continued to take part in rapidly recurring seizures. An exploration of the right frontal lobe revealed a normal appearing cortex but the tissue was



tough. The resected lobe proved to be entirely infiltrated with astrocytoma. He recovered normal use of his extremities and has had no seizures to date.

Case 2. H. P., a woman, forty-nine years of age, was referred by Dr. I. E. Nervig, of Sioux City, Iowa, on December 24, 1935. She complained of convulsions, spells of crying, pain and loss of function in the left arm for two years. The seizures consisted of involuntary grasping by the left hand, followed by flexion of the arm, and clonic jerking. The plain x-ray showed an increased density of the calvarium at the superior aspect of the fissure of Rolando. A walnut sized meningeal fibroblastoma was removed from this region, and she has been free of seizures since.

Case 3. A delicate nine year old girl was referred by Dr. H. E. Farnsworth, of Storm Lake, Iowa, in December, 1935. She gave a two year history of seizures that were growing more frequent. These consisted of forceful head and eye and body turning to the right. There was an occasional grand mal seizure. Examination revealed only a right homonymous hemianopsia. An encephalogram showed a markedly dilated left posterior horn, the etiology of which may have been congenital or trauma from instrumental tissue was uncovered and totally excised, the coronal plane of excision being as far forward as the vein of Galen. The last report I had states that she is growing fat and more alert, and has been free of seizures except for a minor one during a high fever and sore throat. Incidentally it is interesting to note that her macular field of vision has been completely preserved, a situation certainly in favor of the bilateral representation of this function.

#### BRAIN TUMOR

For a long time brain tumors were divided into two types—the benign meningioma (more properly called meningeal fibroblastoma) and glioma. The former is a fibroblastic tumor and in the strict sense is not a brain tumor. The latter is a true brain tumor. Since Bailey and Cushing proposed their classic subdivision of gliomata according to the type cell involved, much information of a practical working value has been gathered concerning the natural history of these several tumors. It is now the consensus of opinion that the glioblastoma, sometimes called spongioblastoma multiforme, is perhaps better left alone with a decompression as a palliative measure. This is a rapidly growing tumor of middle age, with a short history, and usually located in the cerebral white matter. One of its

chief characteristics is spontaneous hemorrhage and not infrequently after a simple decompression, a patient may fail to regain consciousness or die suddenly. Spontaneous hemorrhage is invoked by the change in tension relationships. Only recently I had an opportunity, while uncovering such a tumor in the right frontoparietal region, of observing such a hemorrhage with ultimate rupture of the cortex and extrusion of the clot, all having occurred immediately upon decompressing the cortex. A frozen section made from a small specimen taken at the time of operation will be sufficient for making a diagnosis. A small core of brain may be removed from several locations with a hollow needle. If, however, partial removal is once begun, it should be completed as thoroughly as possible, because remaining tumor is likely to bleed.

The medulloblastoma is a cerebellar tumor of childhood. It has a tendency to implant throughout the subarachnoid space. This is the one glioma that offers any marked response to radiation. It is only fair to say here, however, in regard to radiation, that with the new courage for treating these gliomata with ten to fifteen times the dosage that was formerly used, results of a more favorable nature may be forthcoming. At best, however, the tenure on life with a medulloblastoma is not more than five years with a miserable end of blindness, headache and invalidism, so that debates concerning radical versus conservative treatment are probably more philosophic than scientific.

The astrocytoma is fortunately a common glioma because it is relatively benign. It is commonly found in the cerebrum of adults and in the cerebellum in children. It may be solid or cystic with a mural nodule. In any case every effort should be made to extirpate the major portion of the solid type, particularly by lobectomy. In the cerebellum, cystic astrocytomas practically always arise from the vermis and should be explored there. The mural nodule should be removed, and this will constitute a cure.

The significant thing about the astroblastoma, which is a tumor of the adult cerebrum, is that often a benign appearing, avascular, well delimited nodule may present. The surgeon with high hopes of this being a benign tumor finds that the pedicle infiltrates the brain. Although it is wise to remove as much of this tumor as possible, due to its relative benignity, the operator should be aware that it is likely to lead him with false promise into extremely dangerous territory.

As a case in point, I would like to cite that of F. R., a man fifty years of age. Feeling that I was dealing with a benign tumor of the lateral

ventricle, I followed it almost to the point of an immediate disaster. The patient expired twenty-two hours later, and postmortem examination revealed that this malicious tumor had lured me with a benign appearing nodule on one end. It then emerged from the brain at the floor of the skull to course alongside the pons.

Contrary to the usual opinion, the benign meningioma may be extremely difficult of successful extirpation. Their habit is to arise from arachnoid tufts situated near the great sinuses of the dura and to which they may be connected by numerous vascular channels. Those situated in the mid-sagittal plane or about the falx often require lobectomy before a satisfactory exposure can be made, and not infrequently those about the superior sagittal sinus will necessitate a ligation and segmental removal of this sinus. However, practically all of the blood supply is derived from the overlying dura to which it is attached and little, if any, from the brain in which it imbeds itself but does not invade. A significant and common finding with respect to these tumors is the proliferative reaction of the overlying calvarium which may or may not prove to contain tumor. Moreover, a tiny plaque may stimulate such an overgrowth of bone that the latter of itself (and this is particularly true about the orbit) may consume enough space to produce signs. The patient, H. P., referred to in the topic on epilepsy, exhibited a walnut sized, rather soft and cellular, meningeal fibroblastoma situated adjacent to the superior sagittal sinus. It was quite vascular and associated with a moderate degree of increased density of the overlying calvarium, which in this instance proved to contain no tumor in its havarian canals.

I would like to illustrate the technical difficulty that may arise by presenting another patient. The high degree of vascularity of this tumor was productive of a sign that so far as I am aware has not been attributed to the meningioma, and that is a well defined bruit. J. D., a man forty-two years of age, was referred to the hospital by Dr. J. C. Waddell, of Dana, Iowa. He complained of suboccipital headaches, weakness of the left arm and leg, failing vision and difficulty in swallowing. On examination he presented a left homonymous hemianopsia, a boggy, doughy fullness in the right temple which was slightly tender, and a loud bruit, synchronous with the pulse heard under the right temple. The x-ray revealed a sort of moth eaten appearance of the squamous portion of the right temporal bone and rather wide vascular channels. This suggested an arteriovenous aneurysm, but it was thought advisable to

rule out a vascular meningioma by means of a small trephine. At the time this was done he bled furiously from channels in the bone and scalp. It became necessary at a later date to ligate both internal and external carotid arteries, before the tumor could be approached. A meningeal fibroblastoma weighing 153 grams was removed. Hemorrhage was controlled with difficulty, even after ligation of both branches of the carotid artery, and the patient succumbed to the operation.

In closing the topic, I would like to add what I feel to be extremely pertinent facts about brain tumors. During the past few months, two patients have been referred to us from the medical outclinic where choked discs were discovered accidentally, since neither patient presented neurologic complaints. This constitutes without further argument the basis of a plea for examination of the eye grounds. I believe the examiner will be amply rewarded and may at times quickly disclose the cause of obscure vomiting or headaches. It does not take long to learn what a choked disc looks like.

It is indeed incredible that such a high percentage of brain tumors could be entirely silent except for the so-called tumor syndrome; that is, the symptoms and signs of increased intracranial tension, projectile vomiting, headache, and choked discs. Even the tumor syndrome may be absent or not reliable. Small tumors in vital locations may do infinite damage long before they cause increased tension. I saw a patient two months ago who presented nothing but a vague headache and a progressive bitemporal hemianopsia. The encephalogram was entirely negative. In spite of this, a subfrontal exploration was made of the chiasm and nothing unusual disclosed. He returned later, completely blind in the right eye. A ventriculogram was still entirely normal except for a shift and filling defect of the third ventricle. I reexplored, cut the right optic nerve and removed a thin walled suprasellar cyst which had a long stalk and was hidden behind the chiasm. Subtentorial tumors may be tricky. By localized pressure upon the brain stem they may produce a picture that is confused with anything from encephalitis to heart block, and be unassociated with the telltale choked discs or tumor syndrome. Bradycardia and slow respirations perhaps with some headache may continue over a long period of time. Any such signs should make the patient a brain tumor suspect until otherwise proved.

I am becoming more and more convinced in the indispensability of ventriculography if mistakes in diagnosis are to be reduced to a minimum.



I prefer to do an air injection in all cases preliminary to exploration, where there is the slightest chance for doubt. I cannot endorse the criticism made of its use on the basis of its inherent dangers. That day has passed. This instrument of precision, one of the three great gifts to neurosurgery, has no dangers when compared to the tragic nature of the disease about which it gives such treasured information. It is not uncommon to mistake a frontal tumor for a cerebellar tumor on the basis of the neurologic examination. During the past year a ventricular estimation lured me to do an unnecessary cerebellar exploration in a child who later proved by ventriculography to have a tumor in the left lateral ventricle. Likewise a futile subfrontal search was made for a suprasellar cyst in a young girl who presented destruction of the sella with overlying calcification. Ventriculography later disclosed a tumor in the left lateral ventricle.

#### BRAIN ABSCESS

By far the largest number of intracranial abscesses are sequelae of middle ear infection and mastoiditis. They occasionally occur in the cerebellum but more commonly in the temporal lobe. Second in etiologic importance is frontal sinusitis. Both of these may result in extradural abscess, but altogether too often they are the cause of intracerebral abscess. Extradural accumulations of pus are not infrequently uncovered at the time of mastoidectomy and are adequately taken care of by the otologist. Intracerebral abscess must always, if not traumatic, have thrombophlebitis as its initial circumstance. The infected thrombus travels into the brain by way of a cerebral vein, transgresses the vessel at some point and creates the nidus of suppuration. In the course of time the route which the thrombus took may become obscure and not leave a so-called stalk. Collateral venous circulation across the base of the brain provides a mechanism for establishing an abscess contralateral to the original infection. This is particularly true of cerebellar abscesses following ear infections.

The history of a cerebral abscess following ear infection may be of two kinds. During the acute infection or after a mastoidectomy, the patient may present signs of intracranial infection; there will usually be a degree of meningitis. It is the rule never to explore an abscess if and while organisms are growing freely in the subarachnoid space. The evidence for this is the sugar determination in the spinal fluid. In abscess formation the sugar will not be significantly reduced, and certainly not zero unless organisms are free in the cerebrospinal fluid. Cell counts, smears

and cultures are important. The longer one can safely wait for the abscess to localize and become walled off, the better. It takes at least two weeks for any kind of a wall at all to be developed. During this conservative period, brain edema may outstrip all measures of control. The dangerous increasing tension will manifest itself by the state of consciousness, pulse, respiration and blood pressure, and can be measured accurately by a spinal manometer. If ominous, it is better to decompress on the contralateral side than to attempt to drain an unlocalized abscess. The alternative history may be that an ear infection cleared up and a period of days or weeks later, increasing tension insidiously manifested itself by headache, occasional vomiting and choked discs. It is in these cases that one may forget the infection and suspect a tumor. In preparing for the operation one should assume the lesion to be an abscess until proved otherwise.

If in grave doubt as to localization, I would not hesitate to use ventriculography. Personally, except in rare instances, I prefer to explore for an abscess through a meticulously clean field, rather than through an unclean field such as an infected mastoid. How should the abscess be drained? I feel that the poor success and high mortality rate associated with brain abscess has driven many to an unwise abandonment of recognized surgical principles. I believe that the idea of enucleating an abscess with its wall *in toto* is not supported by surgical logic. Likewise, repeated aspirations, except for sterile abscesses, cannot meet with optimum success. Too large a drainage tube with the hope of the wall extruding itself only magnifies the inherent dangers and encourages the formation of the insuperable brain fungus. I prefer to find the abscess with a ventricular needle through about a half inch trephine, then enlarge the puncture in its wall with a nasal dilator and plant a soft rubber tube one-fourth of an inch in diameter. The tube is split and sutured flush with the scalp and not tampered with for an indefinite period of time. Adhesions will usually form, especially with the attending increased tension forcing the cortex against the dura. Too early manipulation of the tube may mean the difference between success and failure. The following three cases have some interesting features:

G. B., a girl fifteen years of age, developed an osteomyelitis of the skull following a frontal sinusitis. There was suppuration, both outside and inside the skull to the vertex. The extradural abscess was accidentally discovered in the routine x-ray, due to a content of air, probably introduced through the defect in the sinus. The involved bone was removed until normal skull was en-

countered, and the scalp laid widely open. This provided adequate drainage for the extradural abscess. One should never curette granulations over the dura in this procedure. The x-ray findings were fortunate because aside from a slight septic fever, she presented nothing neurologically and no increased tension to warn us of the intracranial complication. She recovered completely.

The other two patients, E. L. and C. D., were girls of the same age, who came within the same month with a history of a Gradenigo's syndrome (pain in the face and a sixth nerve palsy) following ear infection and mastoiditis. This syndrome is due to a petrositis with enough infection at the mesial aspect of the petrous portion of the temporal bone to involve the fifth and sixth nerves. The patient may recover under conservative treatment, or progress to meningitis or suppuration. These two patients developed the signs of increased tension and thirty cubic centimeters of pus were drained from each from posterior temporal lobe abscesses. Both patients are recovering uneventfully.

#### OCULAR CHANGES ASSOCIATED WITH INTRACRANIAL LESIONS\*

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Embryologically the eye is a part of the central nervous system and, in addition, six of the twelve cranial nerves send all or a part of their fibers to the eye and adnexa; hence it is not surprising that ocular changes are commonly associated with intracranial lesions. The frequency and importance of such changes are well known. The common ocular signs of brain or meningeal diseases may be enumerated as choked discs, optic neuritis, optic atrophy, changes in the fields of vision, nystagmus and paralysis of the third, fourth, fifth, sixth or seventh cranial nerves.

##### COMMON OCULAR SIGNS OF INTRACRANIAL LESIONS

The importance of an examination of the eye-grounds in suspected intracranial disease goes without saying. Foster Kennedy, the well known neurologist, states in Cecil's Textbook of Medicine that, "The constant use of the ophthalmoscope is essential in neurological medicine and almost essential in all branches of medicine. The instrument is more indispensable than a stethoscope."

Choked disc or edema of the optic nerve head is the most common sign of brain tumor, being present in no less than 80 per cent of the cases. It also occurs, although somewhat less frequently,

with brain abscess, meningitis, hydrocephalus, skull fractures and intracranial hemorrhage. Both eyes are usually involved but the edema may be unilateral in the early stages. The nerve head is enlarged, it is elevated above the level of the general fundus and protrudes slightly forward into the vitreous, it appears gray and translucent and the margins are blurred, the arteries are contracted and the veins are engorged and tortuous, and oftentimes hemorrhages are present on and around the disc. The visual field shows an enlarged blind spot corresponding to the increased size of the nerve head. Vision is but little affected in the early stages but later, with the development of secondary optic atrophy, visual acuity is diminished; the end result may be total blindness. Choked disc is the result of increased intracranial pressure. The size of a brain tumor is not necessarily a determining factor in the production of edematous nerve heads, since a small tumor of the corpora quadrigemina or pineal body, in the region of the aqueduct or great vein of Galen, may close the normal outlet and dam back the cerebrospinal fluid into the ventricles. Choked discs appear early and almost invariably accompany tumors of the cerebellum, quadrigeminal plate, parieto-occipital region, third and fourth ventricles or base of the brain. Tumors of the frontal or temporal lobe usually produce edema of the nerve heads. It is only in tumors of the pituitary body, pons, corpus callosum, subcortical areas or medulla that choked discs appear late or not at all.

Optic neuritis, an actual inflammation of the optic nerve head, exists in some cases of meningitis, especially those due to syphilis, and also, occasionally, with brain abscess. The differential diagnosis between choked disc and optic neuritis is often difficult or even impossible. In neuritis vision fails rapidly, the swelling of the nerve head is not so pronounced, both arteries and veins are engorged, and the vitreous may show opacities.

Atrophy of the optic nerve may be primary or secondary. Primary atrophy occurs in tabes or paresis or as a result of pressure on the nerve in tumors of the subfrontal area or pituitary body; it is not rare in fractures of the base, especially those through the lesser wing of the sphenoid bone. It may be due to pressure from a sclerosed internal carotid artery or a frontal abscess. In primary atrophy the nerve head appears white or gray, pathologic cupping is present, the margins are unusually distinct and the vessels are normal. Vision is poor or entirely absent. Secondary atrophy follows choked disc or optic neuritis, hence is frequently encountered in the late stages

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of brain tumor and meningitis. Its appearance is somewhat different from that of primary atrophy in that the nerve head is usually chalky white, newly formed glial tissue fills in the physiologic cup and there is no cupping, the margins are irregular and somewhat indistinct and both sets of vessels are reduced in caliber.

The visual pathways extend from the eyes anteriorly to the extreme end of the occipital lobes posteriorly. Lesions in many localities throughout the brain may interfere with vision by affecting either the optic nerve, chiasm, optic tract, lateral geniculate body, optic radiation or visual cortex. Changes in the fields of vision are often of definite localizing value, especially when accompanied by other symptoms and signs. Pressure on the optic nerve affects the field of vision in only one eye, whereas similar lesions in all other parts of the visual pathway result in defects in the fields of vision of both eyes. In the early stages pressure on the optic nerve may give rise to a central scotoma; this is followed by concentric contraction of the field of vision and eventual blindness in the affected eye. The nerve may be involved by pressure from a tumor of the frontal lobe or pituitary body, aneurysm or sclerosis of the internal carotid artery or fracture through the lesser wing of the sphenoid bone. It may be stated, however, that in tumor of the hypophysis the field of vision in the opposite eye is usually also affected.

Lesions of the chiasm are most frequently due to pressure from a pituitary tumor or a suprasellar cyst or neoplasm; occasionally a dilated third ventricle is responsible for chiasmal lesions. If pressure is exerted on the center of the chiasm, the crossed fibers, i. e., those from the nasal retina of each eye, are destroyed and a bitemporal defect in the visual fields follows. Thus bitemporal hemianopsia is stated to be typical of pituitary lesions, but in actual practice the tumor is usually not discovered until a later stage and the fields then show a complete loss of vision in one eye and a temporal defect in the field of the opposite eye. In rare instances sclerosed internal carotid arteries press on the uncrossed fibers, from the temporal retina of each eye, at the lateral sides of the chiasm and give rise to binasal defects in the fields of vision or even to binasal hemianopsia.

Lesions of the optic tract produce homonymous defects in the visual fields, i. e., blind areas in the right or left half of the field in each eye. Homonymous hemianopsia is most frequent. The blind area commonly passes through the point of fixation, i. e., there is no sparing of the macula with retention of a small area of central vision. Wernicke's pupillary phenomenon is present; the

pupil fails to contract to light thrown on the affected half of either retina. Tract lesions are comparatively rare.

Destruction of the lateral geniculate body results in visual field changes similar to those of tract lesions. The visual fibers which make up the optic radiation have a rather long course; they sweep forward from the lateral geniculate body through the posterior limb of the internal capsule above the inferior horn of the lateral ventricle, bend backward in the temporal lobe and pass lateral to the posterior horn of the lateral ventricle to the posterior pole of the occipital lobe. Thus they may be affected by lesions of the temporal, parietal or occipital lobe. Lesions of the radiation or visual cortex produce homonymous defects in the fields of vision; such defects may appear as homonymous scotomata, homonymous quadrant defects or homonymous hemianopsia. The macula is usually spared and central vision is retained. Wernicke's pupillary phenomenon is absent; the pupil reacts to light thrown on the blind half of either retina. In diseases of the visual cortex or radiation the patient may complain of visual hallucinations. Tumors, cerebral hemorrhage and trauma are the most frequent lesions in these areas.

An involuntary to and fro movement of the eyes may occur as a symptom of brain lesions in the basal ganglia, the cerebellum or its tracts in the pons, medulla and midbrain, or in lesions of the cerebellopontine angle or quadrigeminal plate.

The third, fourth and sixth nerves supply the extra-ocular muscles and thus provide for rotations of the eyeball. Paralysis of one or more of these nerves results in double vision and limited rotations of one eye. The third and sixth nerves are often affected but the fourth rarely. Meningo-vascular neurosyphilis, tabes and paresis account for approximately one-half of these cases; meningitis, encephalitis, vascular disease, fractures of the base or tumors of the base are other causes. In lesions of the third nerve the upper lid may droop, the pupil may be dilated and inactive and paralysis of accommodation may be present. The sixth nerve is most often affected by tumors of the pons or cerebellopontine angle and by middle ear disease which has extended into the petrous bone. The fifth nerve is sensory to the eye and is not often involved. However, deep seated ocular pain is not rare in inflammatory lesions extending from the middle ear to the petrous bone. The seventh nerve supplies the orbicularis oculi muscle which closes the lids; paralysis, which is rather rare, is evidenced by inability to close the eyelids. It may be due to lesions in the pons or meninges.

Another common ocular sign of intracranial disease is the Argyll Robertson pupil; it is most frequent in tabes but does occur occasionally in encephalitis and other conditions.

Conjugate deviation of the eyes may be spastic or paralytic. The former is sometimes seen as the oculogyric spasm of postinfluenzal encephalitis. Paralysis of lateral rotation occurs with supranuclear lesions and lesions of the midbrain, pons or motor cortex; paralysis of upward rotation is significant of lesions in the quadrigeminal plate.

Bilateral paralysis of the ocular muscles and proptosis is significant of cavernous sinus thrombosis.

#### OCULAR SIGNS OF LESIONS IN SPECIAL BRAIN AREAS

The common ocular symptoms and signs of localized lesions in the brain may be enumerated as follows, but it must be borne in mind that such signs are not invariably present:

Frontal lobe. Choked discs are frequent. Foster Kennedy has described a syndrome with frontal lobe tumors—central scotoma and optic atrophy on the side of the tumor, with choked disc on the opposite side. Ocular palsies may be present. In cases with pressure on the motor cortex there may be conjugate deviation of the eyes.

Pituitary body and suprasellar area. Bitemporal hemianopsia and optic atrophy; choked discs are rather uncommon.

Parietal lobe. Choked discs and homonymous hemianopsia may be present.

Temporal lobe. Choked discs and homonymous defects in the fields of vision or homonymous hemianopsia; visual hallucinations and a dilated, fixed pupil on the side of the lesion may occur.

Occipital lobe. Choked discs and homonymous scotoma, homonymous quadrant defects or homonymous hemianopsia; visual hallucinations.

Cerebellum. Early and pronounced choking of the nerve heads; nystagmus; paralysis of the sixth or seventh cranial nerve may appear as a late change.

Midbrain. Paralysis of the third nerve; choked discs with lesions of the corpora quadrigemina.

Quadrigeminal plate. Early choked discs, paralysis of upward rotations, ocular palsies and dilated, fixed pupils; nystagmus occasionally.

Third and fourth ventricle tumors. Early choked discs.

Pons. Paralysis of lateral gaze; combinations of paralyzes of the fifth, sixth and seventh nerves; vertical nystagmus and disturbances of the pupillary reactions may occur.

Cerebellopontine angle. Paralysis of the sixth and seventh nerves; nystagmus; and perhaps choked discs in the late stages.

Basal ganglia. Homonymous hemianopsia and nystagmus.

Medulla. Ocular symptoms and signs are rare but occasionally Horner's syndrome (miosis and slight ptosis) may be present.

Base of the brain. Paralysis of the third, sixth, and more rarely the fourth cranial nerves; optic atrophy with lesions of the anterior fossa and choked discs with those of either the middle or posterior fossa.

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#### THE TREATMENT OF RHEUMATIC HEART DISEASE\*

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The treatment of rheumatic heart disease has seemed a timely subject, not because there are any new and wonder working methods of treatment to record, but rather because statistics on the mortality and morbidity from this disease demand that we make the best possible use of such treatment as we have at our command. In 1934, the recorded death rate from heart disease was two hundred and forty-three per hundred thousand for the country as a whole, while for Iowa it was two hundred and twenty-one per hundred thousand. During this same period, the death rate from tuberculosis was fifty-six per hundred thousand for the United States, and twenty-five per hundred thousand in our own state. On the basis of Washburn's estimate that from thirty to thirty-five per cent of all heart deaths are due to rheumatic heart disease, rheumatic heart disease alone would be responsible for almost one and a half times as many deaths in the United States, and almost three times as many deaths in Iowa as is tuberculosis. Since few diseases are reportable and rheumatic heart disease is not numbered among these, we have no authoritative morbidity statistics, but Emerson estimates that for every death from heart disease, there are probably seventeen people suffering from it, while for every death from tuberculosis there are only seven people with tuberculosis. If this comparison holds true for Iowa, we have nine people with heart disease for every one with tuberculosis, while those with rheumatic heart disease outnumber those with tuberculosis more than three to one. My own impression, gained from forty-odd heart clinics held in various parts of the state, is that rheumatic heart disease accounts for a relatively larger proportion of our heart cases, not less than

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forty per cent. This would seem to bear out rather than to disprove Emerson's estimate, since rheumatic heart disease is relatively more prevalent in our section than in other parts of the country with a more equable climate.

There is no field of medicine in which the proverbial ounce of prevention should be more truly worth a pound of cure than in heart disease, whether its value be reckoned in terms of morbidity or of mortality, but various factors make it particularly difficult to insure that ounce of prevention. We know that rheumatic fever is usually preceded by an infection of the upper respiratory tract, but there is rarely anything to distinguish this infection from the countless others that have apparently entailed nothing more than transient discomfort. Nose and throat infections have so long been dubbed "common colds" that it is difficult to convince the public that they are in reality responsible for an uncommonly large number of disasters. Rheumatic heart disease claims its largest number of victims among children, and it is not mere coincidence nor even the very important question of general nutrition that accounts for its higher incidence among the poor. The busy mother lacks the time and often the desire properly to care for the child who seems not acutely ill but merely "under the weather." To have the child in school is to have it out from under foot, and the child, with what to her is merely a cold or who is convalescing from what seems a minor illness, is packed off to school at the earliest possible moment. Yet the apparently minor infections are important not only in the etiology of rheumatic history, but also later in activating what has been a latent process. In rheumatic heart disease, as in tuberculosis, the primary lesion may be acquired in childhood but remain latent until activated by another infection or by the stress and strain of later years. If we are to accomplish anything in the field of prevention, it must be through an intensive educational campaign. The efficiency of this method is reflected in the lowered death rate from tuberculosis. Sunlight was once hailed as a sovereign remedy in tuberculosis, but the spotlight has proved far more effective in its control.

Nor are we of the medical profession to be commended for the fine example we set the public. The sick are accustomed to command medical service, and they do not accept graciously the refusal of their regular attendant to render service when he pleads a common cold as his excuse. Again, the physician's own pride is involved. He is loath to admit any physical disability, a prejudice perhaps dating from biblical times since St. Luke recorded the satiric suggestion already made

to those of his profession: "Physician, heal thyself."

Any comment on the prophylactic treatment of rheumatic heart disease would be incomplete indeed without some mention of tonsillectomy. Since the discovery that the tonsils may harbor the streptococcus, and that rheumatic heart disease is apparently somewhat less frequent among the tonsillectomized, tonsil operations have become a favorite indoor sport. Because the tonsils are readily accessible and their removal is only rarely followed by immediate death, the mere possession of a license to practice medicine, osteopathy, or what have you, is too often considered sufficient qualification by the would-be operator. Sometimes the tonsil is but slightly damaged, and eventually heals with little evidence of having been attacked. Less often, the operation is done on a particularly generous scale, and a portion of pillars or fossa removed with the tonsils. Which procedure is to be preferred hinges primarily upon the recovery of the patient, but also upon whether the tonsils were a menace in the first place, and upon the final state of the throat. Bacteriologic studies have revealed the streptococcus cardioarthritides, the streptococcus hemolyticus, and the streptococcus viridans in cultures taken from the surface tissues of the pharynx long after the tonsils had been removed. In any event, I am quite willing to leave all questions of technic where I believe they rightfully belong—with the laryngologists. I willingly concede that this question is their province and not mine, but I must take issue on the casual way in which the advisability of a tonsillectomy is decided, and the equally casual way in which it is too often done. The tonsils are snipped out in passing, so to speak, and the patient is allowed to continue in his stride. If patient and tonsils are normal, and the latter are removed for a problematic cosmetic or a purely commercial effect, such a procedure is not an entirely indifferent one since even the most skilled operator cannot prevent a varying amount of hemorrhage and an open wound in an area which is not, and cannot be made, sterile. Even under the most favorable conditions then, a tonsillectomy should be reckoned an operative procedure calling for a week or ten days of bed rest. When tonsils are removed for cause, i. e., when there is reason to believe that they harbor a virulent organism, or that the heart is already damaged, a tonsillectomy deserves to rank as a major surgical procedure, and calls for a prolonged period of convalescence. In the child or in the adult who has developed rheumatic fever, a tonsillectomy is about as effective as locking the stable after the horse is stolen; tonsillectomy too soon performed or performed

without adequate safeguards may be even more effective; it may be tantamount to burning the stable.

Once the child or the adult has developed rheumatic fever, he should be treated as a heart patient. Symptomatology and diagnosis lie outside the province of this discussion, but in passing I should like to point out that the changes in the heart which we term rheumatic heart disease are often observed without joint involvement or other of the so-called typical symptoms of rheumatic fever. Because we have no medicines that are specific, because no efficient new remedies have been discovered, there is often a failure to make full use of such remedial measures as we have at our command. It may be questioned whether the salicylates can influence the heart changes once they are established, but there is good clinical evidence that they do shorten the course of rheumatic fever and thus minimize the danger of such changes. The salicylates should be given in large doses (from 75 to 120 grains daily), and continued for six months to two years. The pushing of the drug to the limit of physiologic tolerance and its protracted use are important; the choice between the various salicylates is largely a matter of personal preference. The application of an icebag over the precordium is another measure which should be persisted in until all symptoms of endocarditis have subsided. The patient should be kept in bed not only until the temperature has returned to normal, but for many weeks thereafter until the tachycardia also subsides. Nor is the simple imposition of bed rest sufficient. The patient must not only be in bed, but he must be quiet in bed, and this means that he must be kept comfortable, and restlessness controlled, by hypnotics if necessary. To keep a child quiet in bed is a prescription easily given by the doctor, but carrying out that prescription is an art and a science, and I make my bow to the nurse or the mother who has the skill and patience to carry out the prescription.

Sedatives are often required, not only in the early stage of rheumatic fever, but also in the later crises which mark its course, since the nearest approach we have to giving the heart rest is to keep the patient quiet. Opiates may be required, but they have two grave disadvantages: one hesitates to prescribe any habit forming drug in an illness of so chronic a course, and the nausea and vomiting which they often induce is not only unpleasant but even dangerous. One of the barbiturates, say phenobarbital, is effective, but for the long pull the bromides are in many ways preferable. They are often considered ineffective be-

cause they are frequently prescribed in too small doses. For an adult, 30 grains each of sodium and strontium bromide three times a day may be required. This may be administered by rectum to avoid any gastric irritation.

The use of digitalis in heart disease is time-hallowed, and today we are fortunate in having at our command various preparations of the drug that are of proved potency. Digitalization rests the heart by slowing its rate and prolonging the diastole, and also by direct action upon the myocardium. Once the patient has been digitalized, the dose should be gradually reduced to the minimum that will maintain digitalization. Here again we are sometimes handicapped by the development of nausea and vomiting. Strophanthin and scillaren have much the same effect as digitalis, and since they are better tolerated by some patients they should be given a trial if the latter produces unpleasant symptoms.

Pericardial effusion is a frequent complication in the course of acute heart disease. A definite diagnosis may usually be made from the clinical picture alone, but the roentgenogram, when this can be made without too much exertion or excitement for the patient, gives valuable supplementary information. A serous exudate, if it does not too much embarrass the action of the heart, may safely be left to absorb. When the exudate is very extensive, or when there is pyocardium, aspiration should be resorted to.

Disorders of the heart beat often develop during the course of acute as well as of chronic heart disease; i. e., auricular flutter, auricular fibrillation, paroxysmal tachycardia, extrasystoles. It is here that quinidin is of real service. It is not a spectacular drug since its effect is not manifest within a few minutes, but rather after hours. Nor is it a drug which may be used indiscriminately for there are patients who have a definite idiosyncrasy for it. It should be administered only when the patient can be kept under the observation of a physician. On the other hand, where it is well-borne and effective, and this is the rule rather than the exception, it is a most efficient remedy and one which may be administered over a long period of time.

Certain general measures are of value and, with modifications, are important whatever the stage of the disease. The patient who has passed the acute stage of rheumatic heart disease, like the patient with a case of arrested tuberculosis, should learn to live within his physical means. He should avoid unusual or prolonged strain, and jealously guard his hours of rest. The diet should be nutritious but easily digested. The stomach must never be



overburdened and frequent light meals are better than two or three heavy meals a day. The general health should be maintained at as high a level as possible, and since these patients are often anemic and under weight, a tonic is prescribed with advantage. Cod liver oil is always good, and in its modern guise is not objectionable from the patient's standpoint. Iron in some form, potassium iodide, and strychnia each has its place, and to these we may add any one of several modern preparations.

When rheumatic heart disease develops in childhood or youth, the choice of a vocation is of vital importance, a therapeutic measure which the physician should never overlook. The rheumatic heart cannot carry the load imposed by heavy manual labor for any length of time. This fact should be recognized early, and these patients prepared for some occupation which will allow them to be self-supporting in spite of their handicap. The man who has learned to earn his livelihood with a pen may find it possible to lay down the pen and take up the pickax if choice or necessity dictates the change. The man who has learned only to wield the pickax cannot exchange it for the pen.

Once these rheumatic heart patients have developed decompensation, medical science can offer no full pardon from the death sentence. At most we may hope to commute that sentence, and often such commutation is only to life imprisonment without the saving diversion of labor. For some it means a bed to chair existence, which under favorable economic conditions may be prolonged for years, a questionable boon. When edema and ascites place a dangerous burden on the heart, a diuretic must be used. While there are a number from which to choose, I have been impressed with the value of salyrgan. It is effective even in the presence of damaged kidneys, but the patient should then be prepared by the administration of ammonium nitrate, now available in enteric coated capsules. In administering salyrgan, great care must be taken not to allow any of the drug to escape into the tissues about the vein, for a painful slough that is difficult to heal will result.\* If this misfortune has occurred, dressings wet with a saturated solution of sodium thiosulphate should be applied, and 15½ grains of sodium thiosulphate in distilled water should be given intravenously daily for three or four days, and every second day thereafter until the slough heals. The latter treatment is also of value in what we may term "reconditioning" the patient who no longer responds to the salyrgan treatment.

In paroxysmal dyspnea, which from the patient's standpoint may be even more distressing than tachycardia, 300 cubic centimeters of a fifteen per cent glucose solution given intravenously is our best remedy. If failure of the peripheral circulation makes the administration of this amount of fluid inadvisable, 100 cubic centimeters of a fifty per cent solution should be administered.

#### CONCLUSIONS

1. Mortality statistics suggest that the streptococcus cardio-arthritis is a more dangerous fireside companion than the tubercle bacillus. The spotlight has been the most powerful single therapeutic agent in the control of tuberculosis. It should prove equally effective in lessening the havoc of rheumatic heart disease.

2. An ounce of prevention is worth the proverbial pound of cure. Anyone, but particularly the child with a common cold, should have uncommon care.

3. Tonsillectomies should rank, not as an indoor sport, but as formidable operations, and as such should have adequate pre- and postoperative care.

4. We may hope to modify the course of, but we may not hope to cure rheumatic heart disease. We may give these heart patients ten commandments, but at least the first three are rest, *rest*, *REST*.

5. A man may lay down his pen and take up the pickax as a whim or of necessity, but rare is the genius who can lay down the pickax and take up the pen. The heart patient should be so trained that he may earn his living by skilled and not by manual labor.

6. When the man with rheumatic heart disease has developed decompensation, he may still be given a reprieve but we may not hope for a full pardon.

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#### SURGERY OF THE GALLBLADDER AND BILIARY TRACT\*

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The first account of the removal of gall stones ante mortem is contained in the writings of Vander Wiel in 1687, Amyaud in 1738, and Muller in 1742. Their removal, however, was more or less incidental. The first deliberately planned operation for the removal of gall stones was performed by Jean Louis Petit in 1743. He would not perform this operation unless the gallbladder was adherent to the abdominal wall. No further advance was made until 1859 when Thudichum

\*Mercurin, which may be administered by bowel, is to be preferred in some cases.

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proposed a two-stage cholecystotomy. In the first operation the gallbladder was sutured into the abdominal wound, and in the second it was opened. Cholecystotomy in one stage was first performed by an American surgeon, Bobbs, in 1867, who was under the mistaken impression that he was dealing with an ovarian tumor.<sup>1</sup> The first cholecystectomy was performed by Langenbach in 1882<sup>2</sup>, and the patient made a speedy recovery. Repeated attempts on the cadaver paved the way for his success.

Gallbladder and biliary tract diseases occur more frequently in women than men in a ratio of four to one. The majority of women associate the onset of their symptoms with their first pregnancy. The classical symptoms of gallbladder disease are belching, attacks of colicky or dull pain across the upper abdomen or lower chest, intolerance of fatty or raw foods and pastry, nausea, vomiting and jaundice.

Of course, a careful, painstaking history and an exhaustive physical examination, together with laboratory tests and x-ray studies, are necessary for the proper evaluation of any case. The Graham Cole test as used by Dr. Kestel is as follows: In an individual of average weight, a meal at noon devoid of fats is followed in thirty minutes by two and one-half grams of dye; an evening meal at six-thirty consisting largely of carbohydrates is followed by two and one-half grams of the dye. Fruit juices are allowed during the first hour after administration of the dye. The first radiograph is taken the following morning at eight-thirty and is followed by a carbohydrate meal. This meal consists of two slices of toast with jam or jelly, a glass of orange juice, and either tea or coffee with sugar. The second and last radiograph is taken two hours later. A smaller shadow of relatively increased density is usually obtained. Stone shadows or other negative shadows are more clearly visualized and might be discovered when overlooked in the original radiograph. If they have vomited part of the dye or developed diarrhea after the administration of the dye and the carbohydrate meal fails to intensify the shadow adequately the cholecystogram is repeated after the intravenous administration of the dye.

Cholecystostomy is an operation which a number of years ago occupied the place now largely taken by cholecystectomy. At the present time it is only used when cholecystectomy is contraindicated. In the past twenty-two years I have performed this operation four times. The first time because of advanced cardiac failure accompanied by severe gall stone colic. The patient was sixty-six years of age. He died of heart disease

three years and five months later. His health was greatly improved by the operation. The second time because of severe angina pectoris accompanied by marked gaseous indigestion together with gall stone colic. This patient was sixty-four years of age. He experienced complete relief from gallbladder symptoms, and died four months later of cardiac decomposition. No further anginal attacks followed removal of the gall stones. The third cholecystostomy was performed because of nephritis in a very obese subject. The patient was fifty-two years of age, and she is living and in good health at the present time. She was operated upon in November, 1924. The fourth operation was performed because of severe gall stone colic over a period of forty years, and continuous pain for one month prior to seeking relief. The patient was ninety-nine years of age. She stated following the operation that it was the first time she had been free from pain in forty years. She died suddenly ten days later of a heart attack while she was being helped out of bed. All operations were done under local infiltration and with paravertebral block.

Other indications are: first, for the relief of jaundice in common duct obstruction due to tumors of the pancreas; and second, when the condition of the common duct is such that the possibility of a permanent cholecystogastrostomy may have to be done. Cholecystectomy is the operation now universally performed by all surgeons unless one has frank contraindications. The method of performing cholecystectomy varies with different surgeons and with different types of gallbladder disease.

Adequate exposure is very essential in gallbladder surgery; indeed, it is the secret of success. Frequently the biliary tract can be brought into better view by clamping and cutting the suspensory ligament of the liver. This can be used as a tractor to turn back the edge of the liver. I always use a procedure which I saw Buchbinder use; that is, I put my hand between the right lobe of the liver and the costal arch. This helps to turn the inferior surface of the liver upward and forward bringing the gallbladder well into view, and greatly facilitating the visualization of the bile ducts. The removal of the gallbladder from above downward, or from below upward, has been the subject of much discussion for several years. Whenever possible, I begin at the cystic duct, because I feel it is not only safer, but much easier. If the gallbladder is greatly distended, one may decompress it by aspiration with a large needle and then clamp the needle puncture and avoid soiling during the remainder of the operation. Crile<sup>3</sup> advocates as-



piration of the gallbladder in empyema plus the injection of alcohol which precipitates the protein and sterilizes the pus. He states he has had no reaction since this procedure was adopted. I feel this procedure is much safer than to pull and squeeze on the overdistended gallbladder and force infection and probably a small stone into the common bile duct. The question may be asked, what does it profit a patient who has a cholecystectomy performed for infection and stones, if later a stone must be removed from the common bile duct?

Shall drainage be used after cholecystectomy? There is considerable difference of opinion among surgeons in this regard. Most surgeons use drainage occasionally, while other surgeons always drain. In cases where there is either soiling with bile or blood from the cystic artery, as sometimes happens even with the most able surgeon, and in cases with a friable cystic duct, persistent oozing from the liver margin, and in cases with marked infection, Penrose drains are useful. I make a lateral stab wound, as advocated by Crile,<sup>4</sup> drain Morison's pouch, and employ great care to keep the drain away from the cystic duct. I believe it depends on how well you sleep at night as to how often you employ drainage. A simple, clean and nicely done cholecystectomy may safely be closed without drainage.

Most surgeons explore the common and hepatic ducts for the following conditions:

1. When a stone is palpated in the ducts.
2. In the presence or history of progressive jaundice or repeated attacks of jaundice.
3. For persistent or recurrent symptoms following operations on the gallbladder or ducts.
4. When the common bile duct is dilated or thickened.
5. If the pancreas is enlarged or hard which might make it impossible to palpate a stone.

Many surgeons have more indications for opening the common duct. Some open it in all cases. I feel the risk to the patient is increased by choledochotomy and should be reserved for the case with well founded indications.

After the removal of stones from the common bile duct, I insert a catheter through the cystic duct into the common duct to a point below the incision through which we have explored the ducts, but the tip should be above the ampulla of Vater. It is essential that the catheter fit snugly into the cystic duct. It is often necessary to dilate the cystic duct to permit the insertion of the catheter. Reid<sup>5</sup> described this method in 1921.

Surgeons differ in their opinion as to when to operate upon patients with acute cholecystitis, but the majority of surgeons feel that the welfare of the patient is best conserved by waiting until the acute symptoms have subsided before operating. However, the danger of gangrene and perforation of the gallbladder in acute cholecystitis cannot be too strongly emphasized. I recently heard an excellent surgeon from a very good clinic make the statement that, "gallbladders rarely perforate, and all cases should be treated until the acute symptoms subside". No doubt that was eminently correct for the patients seen in his clinic, but I feel it is a vastly different thing to manage the type of case seen by the surgeon in rural areas and in the smaller centers. Obviously, we are called upon to treat the acute emergencies much more frequently. Great care, good surgical judgment and experience is required of the surgeon as to the procedure to follow in each case of acute cholecystitis.

The principal complications which cause death following gallbladder and biliary tract surgery are as follows:

1. *Operative accidents and errors in technic:* Under this heading would fall injury to the common or hepatic ducts, peritonitis, subphrenic abscess and hemorrhage. Such deaths can be prevented by greater care in the performance of the operative procedure, with meticulous hemostasis, and with adequate protection of the peritoneum with sponges.

2. *Cardiovascular renal disease:* Heuer<sup>6</sup> points out that twelve per cent of the mortality rate, in a large series of cases taken from the literature, could be accounted for by associated cardiorenal disease. Arteriosclerosis and hypertension definitely add to the risk of gallbladder surgery. Renal damage with albumin, urea and increased blood urea nitrogen, together with arteriosclerosis and hypertension, make operative interference extremely hazardous. Angina pectoris also makes an operation much more serious. The problem presented by patients of this type is not easy to evaluate and requires great skill in diagnosis. We know that chronic cholecystitis predisposes to myocarditis. We also know that the pain in angina pectoris often simulates that of gallbladder disease, and presents a very difficult problem. Better results are obtained in these cases by rest in bed and increased fluid intake preoperatively, than by more formidable surgical procedures.

3. *Gangrene and perforation of the gallbladder:* These occur as complications of acute cholecystitis. These cases usually give a history of long standing disease and repeated attacks of colic, and are

frequently associated with common duct obstruction. These complications can usually be prevented by operation early in the disease.

4. *Pulmonary complications:* Complications of this nature, such as pneumonia, purulent bronchitis and atelectasis are among the more common respiratory complications. The first two complications are probably caused by inhalation of foreign substances, irritation from the anesthetic and emboli. The latter condition has created increasing interest in recent years, and among its causes are mucous plugs which collect in the smaller bronchi, the diminished depth of respiration caused by the anesthetic or preoperative medication, pain caused by the operation on the gallbladder and ducts. In fact, they are caused largely by hypoventilation. The factors which tend to prevent such complications are carefully selected and administered inhalation anesthesia, and postoperative hyperventilation of the lungs by means of carbon dioxide and oxygen. Local or spinal anesthesia does not seem to lessen pulmonary complications. Hugh Cabot says<sup>7</sup> "My own experience in the past year seems to indicate that the routine administration of carbon dioxide has very importantly diminished the number of postoperative lung complications. I incline to the view that the postoperative use of carbon dioxide is the most important single contribution to the ultimate safety of anesthesia which has been made in many years."

5. *Jaundice:* Jaundice of long standing, associated with marked general debility, has been recognized for many years as a cause of postoperative hemorrhage, and of definitely contributing to the operative mortality rate. The preoperative management of jaundice is not entirely satisfactory. However, we should endeavor to build up the general resistance of the patient. This is done best by the intravenous administration of glucose and calcium salts, together with forced fluids and small blood transfusions. In the face of such preoperative therapy, the mortality rate of operation in the presence of jaundice is still very high.

Liver death was described by Heyd.<sup>8</sup> I have had one death in a young woman which closely resembles his description. This patient had a high temperature, delirium, carphology, coma and death, thirty-six hours after the operation. She had been considered a good risk and was under observation for three days prior to the operation. She was given alkalies by mouth and glucose intravenously. The operation was performed during the extremely hot weather of 1935. To quote Heyd, "We were in the habit of attributing this condition to the development of a postoperative

acidosis incident to the poor metabolism represented by chronic biliary disease, plus the additional elements of anesthesia and surgical trauma." Crile,<sup>9</sup> in discussing liver death at a recent meeting in Omaha, felt it was due to an injury to the sympathetic nervous system. He also observes a similar reaction when he operates on the adrenal and sympathetic plexus. He is of the opinion that trauma to, or scarring over, the sympathetic plexus is the cause (of liver death) in the former, and the latter is the cause of late pain following cholecystectomy. Heyd,<sup>10</sup> in his later writings, has termed these cases as "chemical deaths." He says, "There are many phases of these groups of deaths that suggest basically a disturbed protein mechanism. The entire subject of liver response and chemical deaths is one of intriguing interest, as it offers ample opportunity for clinical research and astute clinical judgment."

How are we to avoid this tragic complication of gallbladder surgery? Frankly, I do not know. It seems to follow as frequently, or perhaps more so, in the simple, nicely done operation on what appears to be a good operative risk as it does in the difficult operative procedure and the patient who is a poor risk.

#### SUMMARY

1. Cholecystotomy has a place in gallbladder surgery in the patient who is a poor risk.
2. Cholecystectomy is the operation now universally employed in the patient who is a good risk.
3. *Adequate exposure is essential* for successful gallbladder surgery.
4. A simple, clean, nicely executed cholecystectomy may safely be closed without drainage.
5. After removal of a stone from the common duct, I like to drain with a catheter placed in the cystic duct.
6. The danger of gangrene and perforation of the gallbladder is emphasized.

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GASTRO-ENTEROSTOMY IN PEPTIC  
ULCER\*

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Gastro-enterostomy as the operative procedure of choice in the surgical treatment of peptic ulcer, is today on trial and one need do no more than briefly review the recent literature to find that the witnesses for the prosecution are about equal in number to those for the defense. Apparently the rather old standard controversy between the medical man and the surgeon as to the true surgical indications for ulcer, has fallen to the background in favor of a more modern conflict: given a surgical ulcer, what type of operative procedure assures one of the lowest mortality rate and the highest percentage of cures?

Probably no other operation has had such a changing and interesting life history. From the day of its first performance, September 28, 1881, by Anton Wölfer, and the second a few days later by Billroth,<sup>1</sup> its numerous modifications have included changes in the position and application of the jejunal loop, the length, shape and position of the stoma and the methods of suture. Courvoisier, in 1883, advocated a retrocolic anastomosis, and in 1885, Von Hoehner<sup>2</sup> perfected a method of making an opening in the transverse mesocolon. To prevent regurgitation, Kocher<sup>3</sup> made a perpendicular, curved gastric incision to form a valve-like opening. The valuable addition of entero-anastomosis between the afferent and efferent loops was suggested by Braun and Jaboulay<sup>4</sup>. Posterior gastrojejunostomy was improved by Czerny in 1890 and later brought to its present form by Movnihan, the Mayos and others.

For some time we have had a practically standard technic for the operation of gastro-enterostomy, and yet in the last thirty years probably no condition has had a more vast amount of study than that of peptic ulceration of the gastro-intestinal tract. These studies have not only given us a much better understanding of the physiology of the stomach and upper small bowel, but have delved more deeply into the etiologic factors concerned with peptic ulceration. A complete general survey of the results obtained by a large group of men and institutions, as well as a study of our own past results, can more clearly help us to evaluate the position of this operation in the cure of peptic ulceration.

Considering the reason for selecting any operation, what are a few of the deductions one can make regarding the pathologic physiology in the cause of chronic ulcer? We must no longer think

of ulcer as a local disease but rather realize that it is a symptom, or localized evidence of a general reaction, and furthermore, that no one single cause, but a group of variable factors must be present for its persistence or recurrence. One need only to look back over ulcer patients he has seen to remember that a great number occurred in a certain constitutional type, and if one gets close to his patients, which is not always the privilege of the surgeon, one finds a great number with hereditary backgrounds, deep-seated nerve fatigue states, anxiety complexes, etc. Whether this predisposition consists of an overactivity of the sympathico-adrenal system as proposed by Crile<sup>5</sup>; a constitutional neuromuscular imbalance, the vagotonia of Von Bergman,<sup>6</sup> and stressed by Cushing<sup>7</sup>; or a local circulatory abnormality in the mucosa of the stomach, the vasoneurotic diathesis described by Mueller and Heimberger,<sup>8</sup> I should not attempt to say but we must accept the importance of ulcer diathesis or constitutional predisposition.

Of the local causes, possibly the precipitating factors, one must consider hyperacidity, hypersecretion, hypermotility, pylorospasm, gastric trauma and focal infection, by far the most important being hyperacidity. One fact is certain, that all peptic ulcers occur in areas subjected to acid gastric secretions, namely, the lesser curvature and pyloric regions of the stomach, the duodenal cap, the jejunum, after gastrojejunostomy, and in Meckel's diverticulum, when it contains islands of gastric mucosa. Mathews and Dragstedt<sup>9</sup> have shown that susceptibility of intestinal mucosa to acid gastric chyme increases proportionately away from the pylorus. By sidetracking the alkaline duodenal secretion, Ivy<sup>10</sup> was able to produce only occasional ulcers in dogs; however, when the duodenum was replaced by the jejunum by Graves<sup>11</sup> and all but one alkaline secretion diverted, jejunal ulcers formed in 100 per cent of the cases, showing that the jejunum is more susceptible than the duodenum to acid.

Although hyperacidity would seem to play a principal part, it is almost conclusive that additional factors must be present. Gage, Ochsner and Hosoi<sup>12</sup> were able to produce only occasional superficial lesions and no chronic ulcerations, by feeding hydrochloric acid and histamine stimulation. Orndorff, Bergh and Ivy<sup>13</sup> were unable to produce chronic ulcers by exposing gastric and duodenal mucosa for long periods to the acidity of gastric juices, and adding hypermotility by using pilocarpine.

Arising in the conflict between gastro-enterostomy and partial gastrectomy in the surgical attack of ulcer, a compromise has been offered in the form of fundusectomy, the removal of the acid

\*Presented before the Eighty-fifth Annual Session, Iowa State Medical Society, Des Moines, April 29 and 30, and May 1, 1936.

secreting fundus of the stomach, with the hope of reducing the acidity at its origin. Unfortunately the experimental work of Watson<sup>14</sup>, Connell<sup>15</sup>, Seeley and Zollinger<sup>16</sup> and others has proved that the gastric acidity cannot be permanently lowered regardless of the amount of acid-bearing tissue removed. Most of the experiments have shown an immediate postoperative drop in free and total acidity but a gradual return to their preoperative level in six to eight months.

Hyperacidity is often associated with other local factors, namely, pylorospasm and hypersecretion. The abnormal retention of gastric juice is probably not only due to hypersecretion but to the partial obstructive action of pylorospasm. Hypersecretion is of no pathologic significance during the digestive period, but as shown by Winkelstein<sup>17</sup>, is a true threat in the fasting stomach. Nicotine undoubtedly causes hyperacidity and may cause a localized mucosal anemia by vasospasm, as has been determined by Friedrich<sup>18</sup> by capillary microscopy. In a series of duodenal cases reported by Gray<sup>19</sup>, 96 per cent were smokers, 60 per cent of whom smoked excessively. Alcohol undoubtedly causes an increased gastric secretion.

In the absence of the normal relaxation of the pyloric valve, achalasia, as suggested by Miller<sup>20</sup>, Hurst<sup>21</sup>, and others, or pylorospasm, as contended by Judd and Waldron<sup>22</sup>, Finney<sup>23</sup>, and Ivy<sup>24</sup>, two pathologic factors are produced; namely, gastric retention and decreased regurgitation of the alkaline duodenal juices into the stomach.

Although Aschoff<sup>25</sup> stressed the danger of gastric trauma, it would seem that additional causes must be present. As reported by Howes, Flood and Mullins<sup>26</sup>, instillation of hydrochloric acid and pepsin in the stomachs of cats, delayed but did not prevent the ultimate healing of artificially induced mucosal defects. That trauma determines the site, but chemical factors determine the chronicity, is suggested by Martin<sup>27</sup>. The bacterial theory of Rosenow<sup>28</sup> has not been universally accepted, although most surgeons do attempt to eradicate foci of infection, giving special attention to appendiceal and cholecystic disease as a possible reflex origin for pylorospasm. Perhaps, in a surgical paper, such a review of the physiologic factors in the correction of chronic ulcer, has little place; however, let no man attempting its surgical cure not keep them continuously in mind, or he will occasionally find his results most surprisingly disappointing.

In considering, then, a more direct application to these causative factors, what does the operation of gastro-enterostomy have to offer? It has often been referred to as "mechanical" in contrast to the so-called "physiologic" operations of pyloroplas-

ties, gastroduodenostomies and subtotal resections. Undoubtedly the best results are obtained in mechanically sidetracking the gastric contents, in retention from pyloric stenosis. However, to infer that an anastomosis between the stomach and jejunum has no physiologic results, is a fallacy. The very relief from retention tends to compensate for pylorospasm and hypersecretion and promotes a lowered acidity. Probably no point is more generally accepted than the fact that in a properly executed gastrojejunostomy there is a reflux flow of alkaline duodenal juice which produces a definite neutralizing effect. In considering the physiologic action of the stoma, many men have observed the passage of barium through the pylorus and artificial opening simultaneously, the two seeming to work together. Lastly, in the physiology of gastro-enterostomy is the disturbing fact that it directly exposes the less resistant jejunal mucosa to the acid gastric chyme with the resultant danger of jejunal or marginal ulcer.

The surgical indications of gastro-enterostomy in preference to other operative methods depend largely on the location of the ulcer, whether it is duodenal, gastric, or gastrojejunal, its local pathology, its complications, i. e., perforation, hemorrhage, obstruction and cancer.

Following the conservative attitude of most American and British surgeons, gastro-enterostomy gives very satisfactory results in the great majority of duodenal ulcers. Undoubtedly the fewest number of failures occur in older patients, with a pyloric stenosis and low gastric acidity. In contrast Balfour has pointed out that the duodenal cases which do badly after operations are in young patients, with no obstruction and a high acidity. Moynihan<sup>29</sup>, with a vast experience, is an ardent advocate of gastro-enterostomy, but insists that the ulcer should be excised, or if non-resectable as a deep posterior ulcer, it should be cauterized. He claims bad or indifferent results in only about six to eight per cent. Hunt<sup>30</sup> states that gastro-enterostomy provides excellent results in 88 to 90 per cent of cases, when technically and accurately performed in the presence of true indications. Judd<sup>31</sup> advocated a simple gastro-duodenostomy by which two-thirds of the sphincter and the ulcer are resected, the closure providing a wide opening between the stomach and duodenum. He claimed good results in 85 to 90 per cent of cases with either this operation or gastro-enterostomy where indicated.

With such good results from the operation, and a mortality rate two to four times lower than that obtained after partial gastrectomy, it is indeed, difficult to understand the drastic trend of many European surgeons expressed by Jean Duval<sup>32</sup> in



saying that, "Gastrectomy is the operation of choice for gastric as well as duodenal ulcers. It is destined to take the place of gastro-enterostomy which is doomed to disappear entirely." Von Harberer<sup>33</sup> makes a strict distinction between operable and inoperable ulcers and pushes his conception of operability to the extreme. The great majority of ulcers in his experience are operable and here he strongly advocates large resections, but in the inoperable ulcers, such as those in the posterior wall with deep penetration into the pancreas, involvement of the biliary channels or poor general condition, he prefers gastro-enterostomy.

Viewing the question conservatively again, it is not a proved fact that excision of a hemorrhagic ulcer is always essential. Gastro-enterostomy alone will protect the patient against a recurrence of hemorrhage in 50 to 80 per cent. Of equal importance, hemorrhage, if it should recur, is seldom of serious consequence. It seems to me that our conservative attitude is well expressed by Walters<sup>34</sup> when he says, "The case of subtotal gastrectomy, with removal of the duodenal ulcer, remains one for future study during which time gastro-enterostomy should continue to hold a high regard, for it will give good results at low operative risk in properly selected cases."

The problems associated with the surgical treatment of gastric ulcer are considerably more complex than those in duodenal ulcer. That the two differ greatly, both morphologically and biologically, is well known. We also know that at least a small percentage of gastric ulcers do become malignant and that differentiation is often impossible by x-ray and sometimes difficult by gross pathology. Alvarez considers most large lesions malignant, and small ones benign, but points out that in 30 per cent of 507 cases, expert radiologists were in doubt as to malignancy. Since this is the only operable stage of cancer, such ulcers of the stomach, certainly the penetrating, large or callous ulcers should be considered primarily surgical and treated by excision.

In a benign gastric ulcer, after thorough medical treatment has failed, when perforation threatens, or when the patient suffers repeated hemorrhages, the simplest method of local excision of the ulcer and gastro-enterostomy would be the operation of choice. Many men prefer gastrectomy; however, the technic will depend largely on the location and extent of the lesion, and the skill of the operator. In some cases ulcers of the posterior wall are so large and adherent that they cannot be removed without great risk, but it has been found that gastro-enterostomy alone will cure 50 per cent of them. It may be a good practice to open the stomach in exploration and cauterize such ulcers.

Occasionally a partial gastrectomy is more easily accomplished than obliteration of the ulcer and gastro-enterostomy, or again, a gastroduodenostomy with excision of the ulcer, if quite close to the pylorus, may be preferred. When either of two procedures seem equally applicable, both as to immediate and late results, one should choose the simpler, which often includes posterior gastro-enterostomy. Large gastric resections done for the majority of gastric ulcers seem unwarranted from the standpoint of results and certainly leave little more to be done in case of further trouble.

The complication of marginal or jejunal ulcer is a difficult problem. It is reported by many men to occur after primary gastro-enterostomy in one to 34 per cent and in smaller numbers after other anastomotic procedures. Follow-up on 2,734 cases from a large group of British surgeons by Wright,<sup>35</sup> shows an occurrence of 4.04 per cent demonstrated and an additional 4.45 per cent suspected. Its treatment is practically always surgical.

In most cases of marginal ulcer following a primary gastro-enterostomy, one should disconnect the stoma, resect the ulcer and do some type of pyloroplasty, although if one were sure the original ulcer was healed and the pylorus patent, the latter would not be required. Some prefer gastrectomy. Following a primary Billroth I or Polya operation, gastro-enterostomy seems to be most satisfactory, as suggested by Balfour.<sup>36</sup> In a secondary jejunal ulcer after primary resection by Billroth II type, the disconnection of the gastro-enterostomy, excision of the ulcer and reconstruction by the method of Polya, may best meet the indication. In Wright's survey,<sup>35</sup> the operative and late mortality rate from secondary ulcer was 22.7 per cent, showing the seriousness of this disastrous complication.

Obstructive, hemorrhagic and malignant ulcers have been mentioned. In perforation with resultant peritonitis, the addition of gastro-enterostomy to simple closure, as advocated by Deaver,<sup>37</sup> Strong,<sup>38</sup> and others, would seem to be ideal as to late results; however, because of the immediate gravity, its indication should be limited only to the very rare early cases or where the local closure obstructs the pylorus.

In summarizing, gastro-enterostomy presents a few unfavorable and many favorable factors in the cure of peptic ulcer.

1. It does not influence the constitutional predisposition.

2. It does not remove the ulcer with its possible future activity, possible hemorrhage, perforation or malignant changes.

3. It does not remove the ulcer-bearing or acid-producing areas of the stomach.

4. It does expose the more susceptible jejunum to acid gastric juice.

5. Its very successes have popularized it to almost a standard technic by the casual surgeon and it has been used where it was not definitely indicated, thereby dooming its ultimate success.

On the other side of the question, we find the following points:

1. No other operation influences the predisposing ulcer diathesis and every ulcer patient should always be neurologically and medically supervised.

2. Gastro-enterostomy is physiologic as well as mechanical in compensating for stenosis, pylorospasm, and hypersecretion as well as neutralizing hyperacidity.

3. When these local factors have been corrected, many ulcers will heal, preventing hemorrhage, perforation and future ulcers in the ulcer bearing area. It further allows for conservative local excision or cautery.

4. The actual difference in the operative mortality rate of resection and gastro-enterostomy is just as great as the small percentage of ulcers that become malignant.

5. More radical operations do not permanently lower gastric acidity without practically a complete gastrectomy.

6. Many men feel that secondary jejunal ulcers are more the result of improper technic, poorly placed stoma and injudicious use of clamps and non-absorbable suture, than the susceptibility to acid, and further, although in smaller percentage, secondary ulcers do follow other anastomotic procedures.

7. Gastro-enterostomy conservatively allows for a sane, further correction of future trouble.

8. It removes no part of a very important digestive organ, preventing the chronic gastritis, dyspepsia of anacidity, severe anemia, etc., referable to radical resection.

9. It carries the lowest mortality rate of any curative procedure and late results compare favorably with any method.

10. Finally, it is a poor policy to allow any operation to popularize itself to over-use. We should not approach the surgical cure of peptic ulcer with a preconceived standard technic, but rather approach open-mindedly and be equipped to perform that operation which best fits the situation. Visualize yourself in your patient's position and then follow the Golden Rule.

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## ACUTE INTESTINAL OBSTRUCTION\*

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In studying the literature of this condition ten years ago and at the present time, it is both interesting and encouraging to learn that the mortality rate has been reduced more than 50 per cent in all types of obstructions. I wish to present to you some of the reasons for the reduction of this mortality rate and some other reasons which I believe will produce a much lower mortality rate than has been recorded.

The common causes of mechanical obstruction are hernia and adhesions following operative procedures, inflammatory reactions, volvulus, intussusception, Meckel's diverticulum, imperforated anus, thrombi of mesenteric vessels, and ileus. The external types of hernia are self-evident and consequently carry a low mortality rate. The internal variety of hernia is rarely diagnosed as such until the abdomen is opened. As reported by Feg and Cubbins, adhesions are responsible for about 75 per cent of the cases of intra-abdominal intestinal obstruction and it is important to note that 19 per cent of this number has had no previous surgery. Intussusception is the next most common cause, accounting for 8.5 per cent; internal hernia, five per cent; volvulus, four per cent; and the remainder a combination of the above mentioned causes.

Pain is by all odds the most important symptom of intestinal obstruction. It is usually of sudden onset, intermittent, severe, colicky or cramp-like in nature. Its severity depends on the degree of the obstruction and the location, and is usually more marked when the small bowel is affected. Auscultation will usually reveal the most active peristalsis at the height of the pain. As the time of the obstruction increases the peristalsis becomes less and the pain also becomes more generalized and less severe until peritonitis develops, and then there is a return of the pain. Accompanying pain are nausea and vomiting and these are usually severe in proportion to the pain and the degree of the obstruction. The amount of vomitus depends on the height of the obstruction in the gastro-intestinal canal, naturally being less if the obstruction is high up. Frequently obstruction of the colon will be complete and vomiting will be absent until gangrene and peritonitis are well established.

The third aid in diagnosis is the x-ray. A flat plate with the patient in a supine position is most valuable. Normally the gaseous contents of the small bowel is not shown by an x-ray film, but when an obstruction is present the gas in the

small bowel will be revealed in the so-called hering bone shadow above the point of the obstruction. This is true even if the obstruction is in the colon. An x-ray film in any other position is of little or no value. Obstipation is as constant as pain. The relief of this condition by the use of enema is often misleading if not properly interpreted. When the enema results may appear to be efficient, a check with an x-ray film will reveal the obstruction is still present if complete or near complete.

Temperature changes depend on the character of the obstruction and the length of time the condition has existed. If the obstruction is due to sudden strangulation of the bowel the temperature will be subnormal, later on the temperature will be about normal and still later as gangrene and inflammation appear the temperature will be increased depending on the kind and extent of infection present. The pulse rate is variable depending on the nervous balance of the patient until the condition has progressed to an advanced degree when inflammation and gangrene has entered the picture. Then the pulse rate will be increased because of dehydration, loss of chlorides and toxemia of inflammation. Distention is a variable symptom, usually the lower the obstruction, the greater the distention. Rigidity does not appear early in this condition but appears as a symptom of inflammation or gangrene.

In the early hours of obstruction palpation of the abdomen elicits a sensation of boggiess similar to a rubber hose partially distended with gas and liquid floating in a fluid, but usually does not produce much pain, rather a slight discomfort on palpation. Likewise the leukocyte count may be evaluated by the length of time the condition has existed and the suddenness and severity of the above mentioned symptoms. If the symptoms appear suddenly and severely there will be an increase in the leukocyte count, but if the obstruction comes on slowly and mild symptoms of pain and vomiting occur there is very little change in the leukocyte count until the obstruction is complete and gangrene and inflammation begin; then there is usually a gradual increase in the leukocyte count, growing higher depending on the character of the inflammation. The foregoing statements are more applicable to mechanical obstruction than to obstruction of paralytic ileus and inflammation, but as these conditions are usually sequelae of other pathologic conditions their characteristics will be omitted because the time will not permit an intelligent discussion.

The victim of intestinal obstruction is an unfortunate patient. First, because he, himself, rarely realizes that he is suffering from a serious condi-

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tion that requires quick and efficient treatment if his life is to be spared; consequently he is slow to seek medical advice. Second, the chances are very great that when he seeks medical advice it will be from someone who has not had a wide experience in handling such cases, as these cases are rather rare and are often confused with other common abdominal diseases, thus resulting in a very disastrous delay before the real condition is realized. Third, when both patient and medical attendant realize that a serious condition has been encountered the tragedy often increases from this time on until the patient has recovered or succumbed.

My definition of tragedy increasing requires a slight digression from the subject in hand. In the past two decades a peculiar condition has arisen in abdominal surgery, in that a large number of surgeons will attempt to care for a case of obstruction of the bowel as a real emergency operation, knowing they may encounter conditions that require both operative skill and surgical judgment which they would never attempt or assume responsibility for if it were an elective case that could be thoroughly studied, prepared and operated on in a very slow and deliberate manner. Therefore, it is my opinion that in all cases of suspected obstruction a thorough and competent consultation of the most skilled surgeons available will reduce the mortality of these cases from 35 to below 15 per cent. This consultation should be held after the abdomen is opened as well as before, and the responsibility of the management from this point to the termination of the case, should be borne by all the consultants.

All mechanical types of intestinal obstruction should be treated surgically and the earlier the treatment the better the chances for a successful recovery. The choice of anesthesia I believe is important and the general anesthesia is the one of choice because it gives a thorough relaxation and lessens the operative time which is a very important factor in these cases. Spinal and local anesthetics may be used to advantage in selected cases but I am of the opinion that they should not be used routinely as recommended by some authors. The preliminary treatment should be a sedative in the form of morphine and atropine, subcutaneous injection of normal saline solution with two to five per cent glucose. Subcutaneous administration of saline solution is preferable to the intravenous route as the system retains the fluid longer and it causes no embarrassment to the circulatory system. Decompression of the stomach and the upper portion of the small bowel by the use of the Levine tube adds to the comfort of the patient and aids the operator at the time of operation by having a collapsed stomach and bowel.

Likewise an enema freeing the colon from gas and fecal matter is a beneficial aid at the time of operation.

In operating on these cases a liberal paramedium incision, opposite the umbilicus, of sufficient length to make a thorough exploration of the abdomen, should be employed. If the bowel above the obstruction is distended with fluid and is boggy and swollen the contents of the bowel should be removed by the use of an enterostomy tube before the obstruction is corrected, whether it is merely the loosening of the obstructing adhesive band or the resection of the bowel. If the blood supply of the involved bowel is damaged or if the bowel is gangrenous, an immediate resection should be done; that is, if the small bowel is involved. If the large bowel is involved, some form of a colostomy should be employed, since the experience of many surgeons has proved that when the small bowel is gangrenous the mortality rate is less when an immediate resection is done than a delayed one, but that the reverse is true when the large bowel is involved.

Postoperatively the patient should be kept quiet and comfortable with opiates. Intravenous administration of salt solution with glucose is recommended for the first thirty-six or forty-eight hours, to supply the patient with food and maintain the blood level of chlorides. Continuous gastric suction by means of a Levine tube until the flow in the intestinal canal is reestablished is a very beneficial step in the after treatment of these cases. Other postoperative complications should receive the same care as when they occur in other operative cases.

Intussusception cases in children may be handled in a little different manner than other forms of mechanical obstruction. Most cases of intussusception may be relieved by water pressure in the form of an enema. The patient should be thoroughly relaxed by a general anesthetic, and one should remember that for each two and one-half feet of elevation of the irrigating can, one pound of pressure to each square inch will be produced, and that the intestinal wall will stand from three to five pounds of pressure per square inch with safety.

#### SUMMARY

1. The symptoms of intestinal obstruction are fairly constant and a carefully taken history and examination should leave little doubt as to the condition.
2. All mechanical types of obstruction are surgical and should be treated by operation just as soon as the diagnosis is made.



3. All cases of obstruction are serious and should be handled by surgeons who are dexterous and rapid operators.

4. The after care is as important as an early diagnosis. The body fluid and chloride level should be maintained by intravenous medication and the stomach and colon should be kept in a state of collapse by suction tubes.

### THE FINLEY HOSPITAL CLINICO- PATHOLOGIC CONFERENCE

#### CONGENITAL ATRESIA OF THE ESOPHAGUS WITH TRACHEO- ESOPHAGEAL FISTULA

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Dubuque

According to Mackenzie<sup>1</sup> the first recorded case of congenital atresia of the esophagus was made by Durston in 1670. Since that time, there has been an average of one case reported each year, the great majority being associated with tracheo-esophageal fistulas. However, nearly one-half of the reports have appeared since Plass<sup>2</sup> complete review of the literature in 1919. At that time he collected 137 cases and since then there has been an average of eight new cases annually. This would seem to indicate that the lesion is not as rare as supposed. The case to be reported is typical of Type 3, congenital atresia of the esophagus, according to Ballantyne's<sup>3</sup> classification.

#### CASE REPORT

The patient, a female child weighing six and one-half pounds, was born at term after a normal delivery. She was the second child of a healthy young mother whose pregnancies had been normal. The mother stated that the first child had died shortly after birth with similar symptoms. At birth the second baby seemed normal except for considerable mucus in the throat which caused some difficulty in breathing. In spite of treatment this continued and when fluids were given or attempts at nursing made, regurgitation, marked cyanosis, and increased difficulty in breathing always resulted. During the first thirty-six hours, the baby had bowel movements of normal meconium. On physical examination the only positive findings were numerous moist râles in each lung and slight distention of the abdomen. An x-ray examination forty-eight hours after birth showed "complete obstruction of the esophagus at the level of the bifurcation of the trachea." On sub-

sequent examinations no barium appeared in the stomach. The baby gradually became dehydrated and evidences of bronchopneumonia developed. She died on the fifth day after birth.

*Clinical Diagnosis:* Atresia of the esophagus.

*Necropsy Abstract:* The body was that of a white baby girl estimated to weigh five pounds and being rather markedly dehydrated. The intestines were dilated with gas. The esophagus was found to end as a blind pouch at the level of the bifurcation of the trachea. The lower portion of the esophagus entered the trachea (Fig. 1). The



Fig. 1. Trachea, lungs, esophagus and stomach. Note the lower portion of the esophagus entering the trachea at the bifurcation.

lungs were acutely congested and showed small areas of consolidation. No other defects were found.

*Anatomic Diagnosis:* Atresia of the esophagus; tracheo-esophageal fistula; bronchopneumonia; emaciation; dehydration.

#### COMMENT

This case demonstrated many of the signs and symptoms considered characteristic of atresia of the esophagus. They may be listed as follows:

1. Normal weight and development at birth.
2. Large amounts of mucus in the mouth and nasopharynx.
3. Recurrent attacks of difficulty in breathing accompanied by severe cyanosis, aggravated by attempts at feeding.

4. Regurgitation of all ingested fluids.
5. Bowel movements of normal meconium for forty-eight hours followed by absence of fecal material.
6. Gaseous distention of the stomach and upper intestine.
7. Demonstration of the atresia of the esophagus by x-ray examination.
8. Gradual loss of weight and increasing dehydration.
9. Moist râles followed by the signs of bronchopneumonia.
10. Inevitable death within a short period after birth.

It should be noted that in this case there were no other congenital anomalies which are associated with the atresia of the esophagus fairly frequently. The most common is atresia ani. The presence of gas in the stomach and upper intestine should have made the diagnosis of the tracheo-esophageal fistula clear, as there was no other way in which the air could gain access to the stomach.

#### GENERAL DISCUSSION

*Etiology:* Several theories have been advanced to explain atresia of the esophagus, but the etiology is not entirely clear. It is known that some factor which causes the anomaly acts very early in embryonic life, since in the four millimeter embryo the esophageal and tracheal divisions are distinct, and the separation is complete in the eleven millimeter embryo (Rosenthal).<sup>4</sup> Furthermore, the anomaly has been demonstrated in an 18.1 millimeter embryo in the Harvard Medical School collection. Rosenthal recently studied four cases histologically, and critically reviewed the various theories which have been offered to explain the anomaly. The reader is referred to his paper for complete discussion of the various theories. It may be mentioned here that Rosenthal noted the remarkable constancy of the position and character of the defect. He came to the conclusion that "the development of the anomaly seems to rest on an early fundamental change in the entodermal cells that give rise to the esophagus, and not on primary concomitant abnormalities. This change may be genetic and related to the anterior end of the neurenteric canal." He states that Mackenzie is cited as having encountered a father, all of whose children, by three wives, were born showing the anomaly. It is of interest that in our case the first child apparently died as the result of atresia of the esophagus. Unfortunately no autopsy was obtained and the diagnosis rested entirely on clinical symptoms.

*Classification:* Ballantyne classified malformations of the esophagus as follows:

1. Absence of the esophagus in toto.
2. Termination of the esophagus in a simple cul-de-sac.
3. Termination of the esophagus in a simple cul-de-sac, the lower end of the canal communicating with the trachea or a bronchus.
4. Tracheo-esophageal fistula, without any other anomaly of the esophagus itself.
5. Esophageal diverticula.
6. Membranous obstruction of the esophagus.
7. Double esophagus.

About 75 per cent of all esophageal malformations are of Type 3 in this classification. It is important to differentiate the different types and especially membranous obstruction which is amenable to treatment. Types 1, 2, 3, and 4 are recognized as being incompatible with life. Attempts at surgery have ended in failure.

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#### MEDICO-MILITARY TRAINING COURSE

The Eighth Annual Training Course for Medical Reserve Officers of the Army and Navy, will be held at the Mayo Foundation, Rochester, Minnesota, from October 4 to 17, 1936. This training course was first inaugurated by the Seventh Corps Area at the request of the Mayo Foundation to give training in military medicine to the younger medical men connected with the Foundation. Other reserve officers requested permission to enroll and to take advantage of the opportunity to attend clinical presentations during the morning hours. Such permission was granted and attendance has become so increasingly popular that it is now necessary to limit the enrollment.

The program will follow the plan of the past years. The morning hours will be devoted entirely to professional work in special clinics and study groups. The afternoons and evenings will be devoted to a medico-military program under the direction of the Surgeon of the Seventh Corps Area (Army) and the Surgeon of the Ninth Naval District (Navy). Enrollment is limited to two hundred, and is open to all Army and Navy Reserve Officers of the Medical Departments in good standing. Applications should be submitted to the Surgeon of the Seventh Corps Area, Omaha, Nebraska, or to the Surgeon, Ninth Naval District, Great Lakes, Illinois.



STATE DEPARTMENT OF HEALTH

Walter Biering

Undulant Fever In Iowa

Occurrence of Undulant Fever

During the nine year period, 1927-1935, positive agglutination reports on all serum specimens examined at the State Hygienic Laboratories in Iowa City, totaled 2,254. Fairly complete information is available relative to 1,063 cases of undulant fever which were reported to the State Department of Health during the same nine year period. A bar diagram showing the yearly distribution of the above figures for laboratory reports and case reports appeared in the May, 1936, number of the JOURNAL on page 263. Collection of data pertaining to undulant fever patients is dependent very largely upon attending physicians, whose sustained interest in the subject of undulant fever is gratifying. The following comments on undulant fever are based almost entirely upon information contained in case records returned by physicians to the State Department of Health and covering the period since January, 1933.

Distribution of Cases by Age and Sex

The distribution by age and sex, of 318 cases of undulant fever reported for the three year period, 1933-1935, is indicated in Table 1. Nearly three-fourths of all cases occurred among males. Fairly equal distribution of cases among males and females seems limited to the age groups affecting both extremes of life.

Distribution by Occupation

Occupational distribution of undulant fever cases for the three year period, 1933-1935, is indicated in Table 2. It will be noted that among 320 patients, 108, or more than one-third, were persons (males) engaged in farm work. The urban group, consisting of merchants, professional persons and tradesmen, numbered 60, or 19 per cent

TABLE I  
SHOWING AGE AND SEX DISTRIBUTION OF 318 UNDULANT FEVER CASES, REPORTED IN IOWA FOR THE PERIOD 1933-1935

Age Group	Male		Female		Total Male+Female	
	Number	Percent	Number	Percent	Number	Percent
Under 1 Year						
1- 4 Years			1	100	1	3
5- 9 Years	8	73	3	27	11	3 5
10-14 Years	13	62	8	38	21	6 6
15-19 Years	15	79	4	21	19	5 9
20-29 Years	66	80	17	29	83	26 1
30-39 Years	67	78	19	22	86	27 0
40-49 Years	39	75	13	25	52	16 4
50-59 Years	15	56	12	44	27	8 5
60-69 Years	7	50	7	50	14	4 4
70-79 Years	2	50	2	50	4	1 3
80+						
Totals	232	73	86	27	318	100

TABLE II  
UNDULANT FEVER IN IOWA FOR PERIOD JANUARY, 1933, TO JANUARY, 1936  
TABLE SHOWING OCCUPATION OF PATIENTS

Occupation		1933 Number	1934 Number	1935 Number	Total Number	Per cent
Farm Work	(Male)	45	32	31	108	33.8
Farm Wife		4	11	11	26	8.1
Rural Schools	Male	1	4	3	8	2.5
Pop. Under 2500	Female	1	3	0	4	1.3
Stock Buyer		1	2	1	4	1.3
Veterinarian		0	0	0	0	0.0
Urban Tradesman		5+4	13	17	39	12.2
Urban Merch.—Prof.		4+3	9	5	21	6.6
Urban Housewife		5+5	16	5	31	9.7
Urban Pack. House Empl.		7	20	12	39	12.1
Urban Butcher		1	2	2	5	1.6
State Institutions		2	0	5	7	2.1
Urban School (Pop. over 2500)		15+2	6	4	27	8.4
Infant Preschool		1+	0	0	1	.3
TOTAL		*30+76=106	118	96	320	100

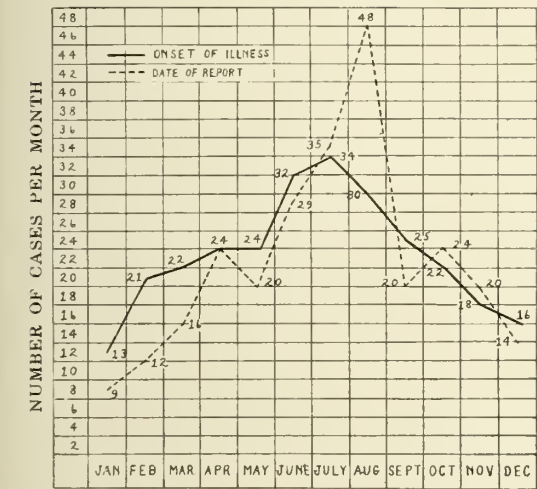
\*Note: 30 cases due to milk-borne epidemic at Council Bluffs.

of all cases. Thirty-nine, or 12 per cent of the 320 cases were packing house workers.

Seasonal Occurrence of Undulant Fever

The accompanying line diagram (Fig. 1) shows the distribution of undulant fever cases for the period, 1933-1935, arranged according to month of onset of symptoms (heavy line) and according to month of report (dotted line). In Iowa the season of greatest prevalence of the disease is during the months of June, July and August.

FIG. 1  
UNDULANT FEVER IN IOWA FOR PERIOD JANUARY 1, 1933, TO JANUARY 1, 1936  
DISTRIBUTION ACCORDING TO ONSET OF ILLNESS  
AND DATE OF REPORT



Tracing Infection to Source

The study of undulant fever cases and case records indicates that the disease is usually acquired

either as the result of contact with infected animals, including surfaces contaminated by their discharges; or through the use of raw dairy products from infected dairy cows. The records show that among urban groups (excepting packing house workers), about one-fourth of the patients had contact with farm animals. Seventy-two to 87 per cent of these patients used raw dairy products prior to onset of illness. The records show further that in the group of packing house workers, about one-fourth were users of raw milk. In this group, it must be assumed that nearly all have direct contact with infected animals or surfaces which are subject to contamination. Accurate determination of the source of infection is dependent very largely upon blood culture findings. Physicians are urged to take a blood culture, whenever possible. The type of brucella organism isolated from a blood culture is a chief factor in revealing the source of infection in cows or hogs. The testing of animals for evidence of infectious (contagious) abortion is likewise essential in establishing the source of infection in cases of undulant fever. Through cooperation with the Bureau of Animal Industry, State Department of Agriculture, and veterinarians, arrangements have been made whereby not only cows, but likewise hogs concerned in undulant fever cases, will be subject to the agglutination test. With more complete information relative to the nature of infection in man and animals, it is often readily possible to trace undulant fever infection to its source.

PREVALENCE OF DISEASE

	July 1936	June 1936	July 1935	Most Cases Reported From
Diphtheria .....	15	11	25	Polk
Scarlet Fever .....	145	393	94	Woodbury, Kossuth
Typhoid Fever .....	5	5	7	Black Hawk
Smallpox .....	48	60	26	Warren, Woodbury
Measles .....	13	18	68	Woodbury
Whooping Cough .....	31	60	89	Lee, Linn
Cerebrospinal Meningitis .....	2	6	10	Buchanan, Polk
Chickenpox ..	26	90	56	Boone
Mumps .....	44	151	110	(For State)
Poliomyelitis ..	1	0	1	Linn
Rocky Mountain Spotted Fever ..	0	0	3	(For State)
Tuberculosis ...	42	47	26	(For State)
Undulant Fever .....	6	13	13	(For State)
Syphilis .....	94	73	110	(For State)
Gonorrhea .....	159	141	175	(For State)



# The JOURNAL of the Iowa State Medical Society

ISSUED MONTHLY

RALPH R. SIMMONS, Editor.....Des Moines

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## THE AMERICAN BOARD OF INTERNAL MEDICINE

There has been an insistent demand that the practice of specialties in medicine be restricted to those physicians who are able to demonstrate that they have special training and capabilities in the branch of medicine indicated as their particular specialty. While intended primarily as a means of safeguarding the public, it is interesting to observe that the movement demanding certification of specialists has originated in and been developed by those physicians who would themselves be subject to this special regulation.

On February 28, 1936, a group of internists incorporated under the title "The American Board of Internal Medicine." On June 15 the organization was completed with the selection of Walter L. Bierring, M.D., Des Moines, as Chairman; Jonathan C. Meakins, M.D., Montreal, Vice Chairman; and O. H. Perry Pepper, M.D., of Philadelphia, as Secretary-Treasurer. These officers, with the following six members, constitute the present membership of the Board: David P. Barr, M.D., St. Louis; Reginald Fitz, M.D., Boston; Ernest E. Irons, M.D., Chicago; William S. Middleton, M.D., Madison; John H. Musser, M.D., New Orleans, and G. Gill Richards, M.D., of Salt Lake City. The term of office of each board member will be three years, and no member can serve more than two consecutive three year terms.

The organization of this Board is the result of effective effort on the part of the American College of Physicians in conjunction with the Section on Practice of Medicine of the American Medical Association, and these two organizations are represented in the membership of the Board on a five to four ratio respectively. The newly created American Board of Internal Medicine has re-

ceived the official approval of the two bodies fostering its organization, as well as that of the Advisory Board of Medical Specialties and the Council on Medical Education and Hospitals of the American Medical Association. The purpose of the Board will be the certification of specialists in the field of internal medicine, and the establishment of qualifications with the required examination procedure for such certification.

While the Board is at the present chiefly concerned with the qualifications and procedure for certification in the general field of internal medicine, it is intended to inaugurate immediately after July 1, 1937, similar qualifications and procedure for additional certification in certain of the more restricted and specialized branches of internal medicine, as gastro-enterology, cardiology, metabolic diseases, tuberculosis, allergic diseases, etc. Such special certification will be considered only for candidates who have passed at least the written examination required for certification in general internal medicine. The operation of such a plan will require the active participation and cooperation of recognized representatives from each of such special fields of medicine. Indicative of the high standards which have been established by the Board may be cited the qualifications required of each applicant for admission to the examination:

### *General Qualifications*

1. Satisfactory moral and ethical standing in the profession.
2. Membership in the American Medical Association or, by courtesy, membership in such Canadian or other medical societies as are recognized for this purpose by the Council on Medical Education and Hospitals of the American Medical Association. Except as here provided, membership in other societies will not be required.

### *Professional Standing*

1. Graduation from a medical school of the United States or Canada recognized by the Council on Medical Education and Hospitals of the American Medical Association.
2. Completion of an internship of not less than one year in a hospital approved by the same council.
3. In the case of an applicant whose training has been received outside of the United States and Canada, his credentials must be satisfactory to the aforementioned Council, the Advisory Board for Medical Specialties and the National Board of Medical Examiners.

*Special Training*

1. Five years must elapse after completion of a year's internship in a hospital approved for interne training before the candidate is eligible for examination.
2. Three years of this period must be devoted to special training in internal medicine. This requirement should include a period of at least several months of graduate work under proper supervision in anatomy, physiology, biochemistry, pathology, bacteriology, or pharmacology, particularly as related to the practice of internal medicine.
3. A period of not less than two years of special practice in the field of internal medicine or in its more restricted and specialized branches.

The American Board of Internal Medicine does not propose to establish fixed rules for the preliminary training of candidates for certification in this field. Broad general principles for training, however, may be outlined, although such suggestions as are made, must of necessity be subject to constant changes reflecting the nature of the specialty.

A sound knowledge of physiology, biochemistry, pharmacology, anatomy, bacteriology, and pathology, insofar as they apply to disease is regarded as essential for continued progress of the individual who practices internal medicine. The mere factual knowledge of medicine and its basic sciences is not sufficient. The candidate must have had training in their use in furthering his understanding of clinical medicine. This implies practical experience under the guidance of older men who bring to their clinical problems ripe knowledge and critical judgment. Preparation to meet this requirement adequately may be even more difficult to obtain than the so-called scientific training. It may, however, be acquired in the following ways:

1. By work in a well organized hospital out-door clinic conducted by competent physicians.
2. By a prolonged period of resident hospital appointments likewise directed by skilled physicians.
3. By a period of training in intimate association with a well trained and critical physician who takes the trouble to teach and guide his assistant rather than to require him only to carry out the minor drudgery of a busy practice.

While the American Board of Internal Medicine does not establish rigid rules for certification, it does feel that the above principles should consti-

tute a definite requisite for certification. The Board feels that a sound knowledge of the fundamental medical sciences is essential for continued progress in the practice of internal medicine, and while they require proficiency in these subjects, they have not attempted to fix courses or procedures by which the information may be obtained. They fully recognize that adequate scientific training may be obtained through several distinctly independent channels and, therefore, prescribe no fixed courses or schedules for attaining this end. Although it is laid down that at least five years must elapse between the termination of the first interne year and the time when the candidate is eligible to take the examination, a longer period is advisable. In declaring this principle the Board recognizes that time and training are but the means to the end of acquiring a broadness and definite knowledge of internal medicine, which the candidate must demonstrate to the Board in order to justify it in certifying that he is competent to practice internal medicine as a specialty. The responsibility of acquiring the knowledge as best he may rests with the candidate, while the responsibility of maintaining the standard of knowledge required for certification devolves on the Board.

The Board has announced that the examination required of candidates for certification of specialists in internal medicine will be divided into two sections: first, a written examination; and second, a practical or clinical examination. The first written examination will be held in December, 1936, and successful candidates in this written test will be eligible for the first practical or clinical examination, which will be conducted by members of the Board near the time for the annual session of the American College of Physicians in St. Louis in April, 1937. The second practical examination will be held at Philadelphia near the time of the annual session of the American Medical Association in Atlantic City in June, 1937. The announced fee for examination is \$40.00, which must accompany the application, and an additional fee of \$10.00 is required when the certificate is issued.

We are advised that the Board is now preparing a handbook covering all of the essential details which may be required of the candidate, indicating the scope of the examination required and giving such further information as may assist candidates in qualifying before this Board. The Chairman of the Board, Walter L. Bierring, M.D., 406 Sixth Avenue, Des Moines, Iowa, may be addressed for full details and a copy of this handbook.



### UREA USEFUL IN THE TREATMENT OF OSTEOMYELITIS

The beneficial effect from the growth of fly larvae in infected wounds, particularly those of osteomyelitis, has been known for many centuries. The older writers commented freely on the clean and healthy appearance of wounds where the accidental introduction of the meat-fly maggot had caused contamination. This observation received but little serious attention until the time of the World War, when the late Dr. W. S. Baer studied the phenomenon by the purposeful introduction of fly larvae into infected wounds.

Since his original description of his favorable results, many writers have reported their extensive observations. It was originally thought that the beneficial effect noted after the introduction of fly larvae was due to their ability to digest and destroy bacteria as well as necrotic material. Later, it was observed that some other factor materially entered into the reaction, since favorable results were observed following the introduction into the infected wound of material filtered from the crushed bodies of maggots or recovered by filtration from the wound itself. This "therapeutic active principle" was studied, and the conclusion reached that the death of organism noted was due to a changed  $p^H$  of the wound itself.

Very recently the United States Department of Agriculture has announced the study made by Dr. William Robinson, in which he points out that two chemical substances are present in the excretion of maggots which may give as favorable and comparable results as that previously observed in the original form of therapy. He describes allantoin, which has previously been observed, and also urea, which has not been previously detected. Preliminary tests indicate that a two per cent aqueous solution of pure synthetic urea by itself induces the same healing as maggots or allantoin. In a recent article, Dr. Robinson cites case histories provided by physicians, surgeons and dentists who have used urea solutions in the treatment of osteomyelitis, gangrene, old ulcers, stubborn wounds, infected burns and non-healing gum and tooth sockets. These reports are encouraging and, if borne out by further clinical tests, will emphasize the great importance to the medical profession of Dr. Robinson's discovery. In connection with this announcement, it is interesting to note that urea and allantoin are closely related chemical substances; in fact, urea may be derived from allantoin by hydrolysis. On the basis of this chemical observation, it is suggested that the favorable reports previously furnished from the use of allantoin may possibly be due to the fact that allantoin introduced into the infected wound may undergo hydrolysis producing

urea, which in turn may be the potent or active substance.

Certainly the reports furnished by these observers would indicate that the recently devised maggot therapy is of decided use in the treatment of infected wounds, particularly those of osteomyelitis, and inasmuch as the isolation of the active chemical substance would remove most, if not all, of the obstacles and objections to this treatment, this new observation may prove indeed an epochal discovery.

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### A NEW MEDICAL DIRECTORY

The needs of organized medicine are faithfully served by the various officers, bureaus and committees of the central organization, The American Medical Association. Little publicized, but none the less important, is the biographical department responsible for the compilation of the wealth of statistical data embodied in the American Medical Directory. After months of painstaking labor they have prepared and now offer to the profession a new and completely revised edition (the fourteenth) of nearly 2,500 pages. This directory is the only nationwide register of physicians, and furnishes not only the names and addresses of 183,312 physicians, but also indicates their specialties, if any, their office hours, their school and date of graduation, and their year of birth.

In the first 221 pages of the new directory the Constitution and By-laws of the American Medical Association, the Principles of Medical Ethics, and a list of the officers of the Association are recorded. In this section also are lists of the hospitals which are approved for interne training, the medical libraries, the medical journals published in the United States, Canada, the Philippine Islands, and Porto Rico, the names of the various officers of active government services, the national organizations for the various specialties with the names of their members, the membership of the new examining boards for the specialties, the medical schools of the United States and Canada, with a brief history of each, and the members of the National Board of Medical Examiners.

The second section, the directory proper, is arranged by states. Introducing each division is published a resumé of the medical practice acts of that state, the members of the Board of Medical Examiners, members of the State Board of Health, county and city health officers, and officers of the state, district and county medical societies. Following this is a list of 7,220 hospitals, sanitariums and related institutions arranged by towns, with the name, location, bed capacity, superintendent and the type of patients treated in each institution.

The third section of 525 pages is an alphabetical index of the names of 183,312 physicians indicating by city and state where the physician is now located and other suggestions indicating the section of the volume where detailed information concerning this physician may be found.

More complete and consequently more useful than its predecessors, the new American Medical Directory is heartily commended to the medical profession. Its scope of usefulness is apparent, and the need for this new revision is easily understood when we observe that about 70,000 physicians have changed addresses since the last edition in 1934, and some 13,157 names have been added to the list. Meriting commendation for its thoroughness and its painstaking accuracy in every detail, the new American Medical Directory should receive a hearty welcome from the medical profession whose activities it reflects and whose members it faithfully presents.

#### DISTRICT HEALTH UNIT ORGANIZATION

##### A NEW APPROACH

While details of policy and plans of organization are not completely formulated, the State Department of Health desires to announce a new approach to district public health unit service that is distinctly more simple and ready of accomplishment than any plan heretofore considered.

The primary requirement is the organization of a public health nursing service in each county. The county nurse must be a full-time qualified public health nurse approved by the director of public health nursing. She must have a local nursing advisory committee which has both medical and dental representation and an approved public health nursing program. The salary of the county public health nurse is \$1,800, with travel expense of \$900 per annum. One-half of this amount, \$1,350, is provided by federal funds from allotments of the United States Public Health Service and the Children's Bureau under the Social Security Act. The other half is to be provided by local funds—Board of Supervisors, Board of Education, and Red Cross, Christmas Seal or other voluntary agencies.

As soon as four or more adjoining counties have satisfactorily organized a public health nursing service, a district public health unit will be formed with a personnel consisting of a full-time medical director specially prepared in public health work, a sanitary engineer, a supervisor of public health nursing and a clerk. All the funds for the district unit are provided from United States Public Health Service allotments, except one-half of the supervisory nurse's salary and one-half of the

travel expense, which comes from the Children's Bureau. At the outset the activities of the medical director and sanitary engineer of the district unit will be limited to the types of work which are carried out by the various divisions of the State Department of Health, it being understood that they represent these divisions and differ simply in that they are more accessible to these areas. Such an arrangement will permit uniform and effective public health programs under the supervision of the central department, but all new projects and plans will be required to have the approval of local medical and dental organizations.

If the amount required for organizing a county public health nursing service, \$1,350, can be secured from local funds, the federal allotment for this purpose will make it possible to organize one-third of the counties in Iowa under the district unit plan during the coming year. The plan proposed will in no way modify the status of local boards of health in regard to their responsibility under the Iowa State Health Laws and Regulations, and the district full-time personnel will not supersede or assume responsibilities of the local health authorities, but will aid them to work out a more comprehensive and effective public health program for the people of the district.

A unit from the State Department of Health composed of a health officer, supervisory nurse and sanitary engineer, expect to visit different sections of the state to make the necessary local contacts and inaugurate the formation of district health units as promptly as possible. The cooperation of physicians, dentists, nurses, county and school authorities and social service organizations is desired, and will be appreciated.

Walter L. Bierring, M.D., Commissioner  
State Department of Health.

#### ONE YEAR UNDER THE BASIC SCIENCE

##### LAW\*

The Basic Science Law became effective in part on July 4, 1935. Since it provided exemptions for students then enrolled in Iowa schools, it does not become fully effective until these students have been graduated. It has been in full effect with reference to applicants for license who come from schools outside the state and for those who seek license by reciprocity. Obviously one cannot evaluate the merits of the bill by experience until it has been in full effect for a considerable period. It is of interest, however, to review what has happened in the first year of administration of the law.

\*Editor's Note: This editorial has been prepared by the Legislative Committee of the Iowa State Medical Society, pursuant to our policy of keeping members of the society informed concerning activities in the legislative field.



An injunction was sought by the smaller colleges of the state against that portion of the bill which exempted students from examination in specified courses in colleges accredited by the North Central Association of Secondary Schools and Colleges. The injunction does not impair the educational standards of the law. It improves them. The objection of the colleges as expressed in this injunction seems fair and well grounded.

The following facts obtained from the Chairman of the Basic Science Board indicate some of the activities:

Number of applicants examined.....	20
Number passed .....	9
Number failed .....	11
Number of reciprocity certificates.....	10
Number of exemption certificates.....	30
Number of exemption and registration certificates .....	2,170

The Chairman advises that the law prohibits the Board from obtaining information relative to an applicant's course of study (medical, osteopathic, etc.). Therefore it is impossible to classify the above applicants. As time passes one will be able to trace backward through records of licensure and classify those who are certified by the Basic Science Board and subsequently licensed to practice.

In the year 1935 and for the first six months of 1936, forty-eight doctors of medicine, three osteopaths and three chiropractors have been admitted through reciprocity. Information at hand does not permit accurate separation as of July 4, 1935, so that a statement as to how many of these were certified by the Basic Science Board is impossible. In the first six months of 1936, nine doctors of medicine were admitted by reciprocity, but no osteopaths or chiropractors registered through the reciprocity route.

Mr. Herman B. Carlson, Director of the Law Enforcement Division of the State Department of Health, advises that the Basic Science Law is an invaluable aid to enforcement because of the definition of healing arts which it contains. He states that "This is the most effective legislation ever passed toward the elimination of quacks." He cites instances before 1935 in which violators of practice acts have continued their activities because they were able to evade criminal prosecution. Under the Basic Science Law injunctions can be sought in lieu of criminal prosecution. In this way action may be immediate. Illegal activities, continued after injunction, are in violation of the court's order, and can be dealt with summarily.

Every effort will be made in the coming legislature to repeal or damage by amendment this ex-

cellent law. Medical practitioners should be zealous in its defense, and see that their respective legislative candidates understand and support this law.

#### INTERNATIONAL MEDICAL ASSEMBLY

The International Assembly of the Inter-State Postgraduate Medical Association of North America, under the presidency of Dr. David Riesman of Philadelphia, Pennsylvania, will be held in the public auditorium of St. Paul, Minnesota, October 12, 13, 14, 15 and 16, with pre-assembly clinics on Saturday, October 10, and post-assembly clinics Saturday, October 17, in the hospitals of St. Paul.

The aim of the program committee with Dr. George Crile as chairman is to provide for the medical profession of North America an intensive postgraduate course covering the various branches of medical science. The program has been carefully arranged to meet the demands of the general practitioner, as well as the specialist. Extreme care has been given in the selection of the contributors and the subjects of their contributions. In cooperation with the Minnesota State Medical Association, the Ramsey County Medical Society will be host to the Assembly and has arranged an excellent list of committees who will function throughout the Assembly.

A most hearty invitation is extended to all members of the profession who are in good standing in their state or provincial societies to be present and enjoy the hospitality of the medical profession of St. Paul. A registration fee of \$5.00 will admit each member of the medical profession in good standing to all the scientific and clinical sessions.

A list of some of the distinguished teachers and clinicians who will take part on the program follows:

Dr. Jennings C. Litzenberg, Minneapolis; Dr. Emil Novak, Baltimore; Dr. Fred W. Rankin, Lexington; Dr. Herman O. Mosenthal, New York, Dr. Robert D. Lawrence, London, England; Dr. Loyal Davis, Chicago; Dr. Frederick A. Coller, Ann Arbor; Dr. Russell M. Wilder, Rochester; Dr. W. Wayne Babcock, Philadelphia; Dr. John S. Lundy, Rochester; Dr. Walter T. Dannreuther, New York; Dr. Hugh H. Young, Baltimore; Dr. Francis J. Charteris, St. Andrews, Scotland; Dr. Charles A. Elliott, Chicago; Dr. Wells P. Eagleton, Newark; Dr. Matthew S. Ersner, Philadelphia; Dr. Vernon C. David, Chicago; Dr. George F. Pfahler, Philadelphia; Dr. John F. Fulton, New Haven; Dr. Maurice C. Pincoffs, Baltimore; Dr. Owen H. Wangenstein, Minneapolis; Dr. William R. Williams, New York; Dr. George Crile, Cleveland; Dr. Robert F. Ridpath, Philadelphia; Dr. Charles G. Heyd, New York; Dr. Joseph W. Larimore, St. Louis; Dr. Eric Oldberg, Chicago; Dr. Robert A. Cooke, New York; Dr. John R. Fraser, Montreal, Canada; Dr. Eldridge L. Eliason, Philadelphia; Mr. Archibald H. McIndoe, London, England; Dr. Chevalier Jackson and Dr. Chevalier L. Jackson, Philadelphia, and Dr. Fred M. Smith, Iowa City.

For further information write Dr. W. B. Peck, Managing-Director, Freeport, Illinois.

# The Scott County Medical and Historical Centennial Exhibit, 1836-1936

PAUL A. WHITE, M.D., Davenport  
Chairman, General Exhibit Committee

One of the old and well worn but choice bits of humor that always evokes a mirthful response, relates to the apparently well authenticated hordes that came over on the Mayflower. In a like manner the number of centennial celebrations held this year creates the impression that our population descended like a blanket on this country about one hundred years ago. This was particularly impressed on the American Medical Association, the American College of Surgeons, and many of the medical schools who in the past originated and furnished much of the material for medical exhibits at the Chicago World's Fair, their own regular meetings, and responded to calls from other organizations from time to time. They found themselves quite overwhelmed this summer by requests from several very large centennial celebrations, such as those at Cleveland, Dallas and San Diego, as well as many minor displays desiring medical and health demonstrations.

Davenport, like many other cities in this country, was founded in 1836. It was built upon land purchased by an organized company from Antoine LeClaire. From small beginnings it has grown to third in size in the state of Iowa, passing through the periods of hardship, fortitude and bravery of the pioneers to the modern city of today with 60,000 inhabitants. The medical history of every community goes hand in hand with its social, industrial and financial vicissitudes and accomplishments, but is usually so little talked or written about that it is only slightly impressed upon the consciousness of its inhabitants. This furnishes one of the reasons for having a medical exhibit in connection with the centennial celebration of the city. The other reasons arise from the growing necessity, as seen by many medical leaders, of informing the general public of the steps in progress that have been made by the medical profession, especially in the past one hundred years, and of impressing the present potency of medical and surgical procedures, showing that medical practice has become less a scientific art and more an artful science.

With these considerations in mind the Scott County Medical Society planned to depict local medical history, illustrate the major strides forward that have been made in medical science in the past one hundred years, and represent the

modern methods and equipment that are used in every day medical practice. It was our good fortune to gain the consent of the RFC officials in charge of the former Union National Bank, which had failed during the depression, to use the beautiful lobby and mezzanine floors of this building for the exhibit. The accompanying cuts will show the construction methods used in the booths. Mr. Robert Dalrymple, associate of Mr. Tom Jones, well known medical artist at the University of Illinois Medical School, was employed to design the layout and direct the placing of the exhibit material. As Mr. Jones pointed out, to our benefit, medical instruction today is best imparted to the public not by charts and statistical facts which soon become boring, but by pictorial representations and artful showmanship. Instead of presenting a mass of material he has found it better to illustrate a few facts and insure their impression on the public mind by giving each demonstration plenty of room, with ample background and artistic arrangement.

The subdivisions of medical history of major importance during the past one hundred years selected for illustration and treatment were as follows:

## *Development of Anesthesia*

Depicting the history of anesthesia, diorama of the first ether anesthetic by Morton, October 16, 1846. Operations in pre-anesthetic times, uses of various types of anesthetics and apparatus, and modern methods with modern equipment displayed.

## *Antisepsis*

Lord Lister's experimental apparatus, and illustrations of the rôle that antisepsis played in changing the course of surgery and medicine, starting largely from the publication of the results of Lister's experience in 1867.

## *Bacteriology and Pathology*

Illustrating the era of Pasteur and Koch, 1860 to 1880, photographs, dioramas, with microscopes for demonstration of bacteria and pathologic tissue. Culture tubes and media. Cards with historical data and explanations.

## *Immunization, Sanitation, and Preventive Medicine*

Methods of control of tuberculosis, diphtheria, smallpox, scarlet fever, etc., contrasting dioramas





of an early village and a modern city sanitation, water supply, and food protection, 1880 to 1900.

#### *Development of Surgery*

Dependence of the development of surgery on the work of Lister and the discovery of bacteria. Historical figures, old surgical instruments, equipment of a modern operating room with wax figures representing the operating personnel.

#### *Development of Hospitals and Nursing*

History of local hospitals, hospital room with wax figures, pictorial showing of opportunities for graduate registered nurses, mechanical miniature hospital, pictures of leaders in the nursing and hospital fields. Vital cooperation of the graduate nurses from Mercy and St. Lukes hospitals was an important factor in this exhibit.

#### *Methods of Modern Diagnosis*

Showing the doctor's office, history files, examining table and instruments for physical examination, laboratory, electrocardiograph, metabolism apparatus, x-ray unit, special instruments for examination, cystoscopes, bronchoscopes, proctoscopes, etc., and those for use in the eye, ear, nose and throat fields. View box showing pathologic lesions by means of x-ray films.

In addition to the historical divisions of the exhibit which were placed in chronologic order on the floor there were a number of incidental displays. The Red Cross furnished a large exhibit illustrating its work in general and in its recent survey of trench mouth disease in Colorado. Loyola University Medical School furnished some beautifully photographed and framed cross-sections of the human body, and photographs of the embryos shown at the Century of Progress in Chicago which created such a sustained sensation there, together with charts illustrating the maturation, fertilization, implantation and development of an ovum. Facts about cancer furnished by Dr. Crowell of the American College of Surgeons were graphically presented. Many other charts carried health or medical messages.

The Exhibit was opened by a pre-view on invitation to about 1,500 of the leading people of the Tri-Cities and to the doctors and their families in the local and surrounding territory, followed by a stirring talk on "Popular Beliefs That Are Not So," by Dr. W. W. Bauer, Director of Public Instruction and Associate Editor of *Hygeia Magazine*, American Medical Association. Motion picture films with synchronized appropriate music

were run continuously on the main floor of the exhibit. Several people were present, mostly graduate nurses, who graciously assumed this task, to guide the visitors and explain the various exhibits to them. The display was in place for three weeks. The newspapers were very cooperative and carried many stories about the exhibit with cuts showing several of the prominent booths. The Medical Society carried paid advertising in the papers regarding the exhibit and daily announcements concerning the talks to be given over the radio by members of the Society. Each evening of the exhibit a talk was given, on invitation, over Station WHBF by a local or visiting physician on a health, historical, or medical subject. These were well received and evoked much favorable public comment. The invitation has been extended to the County Society to continue these talks at semi-weekly or weekly intervals throughout the year.

The Historical Committee headed by Dr. E. F. Strohbahn brought out many interesting and important facts in the local and state medical history, illustrating them with photographs, old books and instruments, and descriptive cards. Dr. Walter L. Bierring, a native son of Davenport, supplied in-

named Mt. Parry in honor of his achievements.

Long will be remembered Dr. John F. Dillon, who was graduated in medicine in 1850, later took up law, became Judge of the United States Circuit County and professor of law at Columbia University, and helped found the medical department of the Iowa State University in 1869; Dr. W. F. Peck who became a member in 1864, a prominent surgeon, helped organize the medical department of Iowa University and became its first Dean of Medicine, played a leading part in the developing of Mercy Hospital, Davenport, the surgical department of the Rock Island Railroad, and in extending the usefulness of the Iowa State Soldiers' Orphans' Home, Davenport; Dr. William D. Middleton, whose membership began in 1868, capable physician who succeeded Dr. Peck as Dean of the Medical School at Iowa University; and Dr. Walter L. Bierring, who was born and raised in Davenport, was professor of medicine at Iowa and Drake Universities, former president of the Iowa State Medical Society, member of the National Board of Medical Examiners, recent president of the American Medical Association, and present commissioner of the Iowa State Department of Health. His career has shed medical effulgence upon our state and nation, and Davenport proudly basks in this gleaming light which originated within her borders.

It is not generally remembered that Davenport had the first medical school in the state in 1849, known as the Davenport Medical Institute. A rumor, later proved false, that a member of the faculty had donated the body of his servant girl who had died suddenly in his home to the students of the school for dissection and had had an empty coffin buried, prejudiced many minds in the community against the medical school for a time. This episode illustrates the dearth of dissection material in those times and the general suspicions, often substantiated, as to the source of the bodies that were used. Subsequent laws remedied these evils. The following year the school was removed to Keokuk, becoming the medical department of the State University until 1869, when this department was developed at Iowa City, in which movement Davenport physicians played a prominent part.

Thus the Scott County Medical Society sought to make its own community conscious of its medical history, while it was learning more of its social and industrial past through other demonstrations during its centennial year. It attempted to impress the epochal discoveries and advances that have been made in medicine during the past one hundred years, and stressed the potent methods and equipment which are used today by the modern physician in his every day medical practice.



teresting data which is quoted. The first physician to locate in Scott County was Dr. E. S. Barrows, who came in 1836. He stated in later years that his territory for practice was then limited on the north by Dubuque, on the south by Burlington, each a distance of about 80 miles, and on the west by the Pacific Coast. The Scott County Medical Society was organized October 18, 1856, with Dr. E. S. Barrows as President. Of the members taken in during the first year there were six who later served as presidents of the State Society: Drs. Witherwax, Barrows, Cochrane, Baker, Gamble and W. F. Peck. Dr. Parry came to Davenport in 1846, later becoming one of the leading botanists of his period, a peak in the Rockies being



# SPEAKERS BUREAU ACTIVITIES

## POSTGRADUATE COURSES

The Speakers Bureau Committee is presenting five extension postgraduate courses this fall. Centers for the courses will be Davenport, Waverly, Sheldon, Oskaloosa and Chariton. Detailed information concerning each of these courses will be mailed to the physicians in the vicinity of each center as soon as definite dates are set, so that every doctor may plan to attend part, if not all, of the lectures. The committee has made every effort to have these courses excellent in every way. Great care has been exercised in the choice of subjects and of speakers, so that the attending physicians may obtain a well rounded course of instruction.

Particular attention is called to the cancer course which is being presented at Waverly. This same type of course was presented last year in Newton and was very successful. The lecturers are outstanding clinicians, and the lectures cover a broad background in the field of cancer. This course is being sponsored by the First, Second, and Sixth Councilor Districts, but physicians from other districts are also invited to attend. The meetings will be held on Thursdays, starting September 17. The course in general therapeutics and diagnosis given at Davenport will be conducted on Tuesdays. The opening lecture will be given Tuesday, September 15, and the final one on November 24. Meetings at Sheldon will be held on Mondays, starting Monday, September 21, and continuing through November 9.

The order of appearance of the lectures as given in the accompanying outlines is tentative only, as all dates have not been confirmed. The lecturers listed are correct with the exception of two who are marked tentative.

### CANCER COURSE

Legion Hall  
Waverly, Iowa

Morbid Anatomy and Physiology of Malignant Tumors	Richard Jaffe, M.D., Chicago
Present Status of Cancer Knowledge	E. T. Bell, M.D., Minneapolis
Malignant Neoplasms of the Nervous System	Loyal Davis, M.D., Chicago
Malignant Tumors of the Head and Neck	Gordon New, M.D., Rochester
Evaluation of Radiologic Diagnosis and Treatment	A. U. Desjardins, M.D., Rochester
Cancer of the Esophagus, Stomach and Small Intestine	Owen H. Wangensteen, M.D., Minneapolis
Sarcomas	Erwin Schmidt, M.D., Madison
Cancer of the Skin	Ruben F. Nomland, M.D., Iowa City
Cancer of the Colon and Rectum	C. F. Dixon, M.D., Rochester

6:00-7:00 p. m. Lecture  
7:00-8:00 p. m. Dinner  
8:00-9:00 p. m. Lecture

### THERAPEUTICS AND DIAGNOSIS

Lend-a-Hand Club  
Davenport, Iowa

The Barbiturates in the Treatment of Disease	William Middleton, M.D., Madison
Principles Involved in the Treatment of Fractures	H. L. Beye, M.D., Iowa City
Diet in the Treatment of Disease	R. T. Woodyatt, M.D., Chicago
Evaluation of Intravenous Therapy	J. S. Lundy, M.D., Rochester
Treatment of Syphilis	Paul A. O'Leary, M.D., Rochester
Modern Cardiac Therapy	Samuel A. Levine, M.D., Boston (Tentative)
Diagnosis and Treatment of Arthritis	P. S. Hench, M.D., Rochester
Diagnosis and Treatment of Common Neurologic Lesions Found in General Practice	Percival Bailey, M.D., Chicago
Evaluation of the Present Knowledge of Allergy	Warren T. Vaughan, M.D., Richmond
Present Status of Endocrine Therapy	E. A. Doisy, Ph.D., St. Louis (Tentative)

5:00-6:00 p. m. Lecture  
6:00-7:00 p. m. Dinner  
7:00-8:00 p. m. Lecture

**THERAPEUTICS AND DIAGNOSIS**

Arlington Hotel

Sheldon, Iowa

**Fractures**

Henry W. Meyerding, M.D., Rochester

**Diagnosis and Treatment of the Anemias**

Maurice C. Howard, M.D., Omaha

**Diagnosis and Treatment of Common Skin Disorders**

John A. Borghoff, M.D., Omaha

**Roentgenologic Diagnosis**

B. R. Kirklin, M.D., Rochester

**The Use and Abuse of Diuretics**

N. M. Keith, M.D., Rochester

**Recent Advances in Therapeutics**

O. H. Plant, M.D., Iowa City

**Modern Treatment of Diabetes**

Russell Wilder, M.D., Rochester

**The Ovarian Hormones in Obstetrics and****Gynecology**

E. D. Plass, M.D., Iowa City

5:00-6:00 p. m. Lecture

6:00-7:00 p. m. Dinner

7:00-8:00 p. m. Lecture

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**UNIVERSITY COURSES**

The faculty of the College of Medicine of the State University of Iowa will present extension courses in medicine and surgery at Oskaloosa and at Chariton, starting the latter part of September. The lectures for these courses have not been outlined as yet, but an outline of the courses with dates for each lecture will be mailed to the physicians in the neighborhood of these two centers.

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**COUNTY SOCIETY PROGRAMS**

A questionnaire sent out from the central office elicited the information that forty county medical societies desired a county exchange type of program during the winter months, and in turn would be glad to send speakers from that society to a neighboring group. The Speakers Bureau Committee is coordinating the requests which have been received, and programs are being arranged daily. The committee will be very glad to hear from any other county societies which would like a program of this type presented during the coming months. In connection with this work, the committee wishes to quote from

a letter written by the secretary of the Cerro Gordo County Medical Society.

"We will be glad to provide a program either of a clinical or research nature for any of the other societies which you wish to have us visit. We have had a series of autopsied cases following sudden death which present rather interesting clinical pictures. These are all non-traumatic. We have also organized within our society a fracture committee, and this committee is to provide a portion of our program each month on some special phase of fracture management. It is possible that a program of this nature would appeal to some of the society units."

The Speakers Bureau is very glad to have information dealing with the programs which are being developed by the different county medical societies, and wishes that other county secretaries would notify this office of any particularly interesting program or programs they may have available for other meetings, or which they have presented at their own meetings. Such ideas are definitely valuable to other secretaries in planning their programs, as well as to the central office, and should be publicized. Furthermore, if there are county societies interested in having a certain type of programs presented, the secretary should notify the central office so that the Speakers Bureau may make arrangements to have such programs prepared. The Bureau feels very strongly that the research work which is done in preparing these programs benefits not only the listeners, but the physicians who do the work as well.

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**RADIO SCHEDULE**

Beginning with the week of September seventh, there will be a change in the days of broadcasting the programs of the Iowa State Medical Society from WOI at Ames. There has also been a change in days at WSUI at Iowa City, and a change in hours at both stations. Note the new broadcasting periods, and plan to tune in each week.

WOI—Fridays at 4:00 p. m.

WSUI—Tuesdays at 7:45 p. m.

September 11 and 15—Stomach Ulcers

D. F. Ward, M.D.

September 18 and 22—Anemia

L. R. Woodward, M.D.

September 25 and 29—Cancer, F. H. Lamb, M.D.

October 2 and 6—Prenatal Care, R. E. Crowder, M.D.



# WOMAN'S AUXILIARY NEWS

*Edited by the Press and Publicity Committee*

MRS. DEAN W. HARMAN, *Chairman*, Glenwood, Iowa

## RURAL MEDICAL SERVICE

The Bureau of Medical Economics furnishes us with these very interesting facts: In spite of many claims as to the lack of medical facilities in rural districts, it is difficult to locate these districts. In the first place, there are more physicians per unit of population in the United States than anywhere else in the world. The state with the fewest physicians per population is South Carolina with one physician per 1,400 of the population. In New York and California there are only 614 and 621 persons per physician, respectively.

In 1934 the American Medical Directory showed that there were only sixteen counties in the United States without any physicians. In 1936 there were nineteen such counties. Most of these counties are in mountainous districts and, with two or three exceptions, are served by adjoining counties. The population per square mile is about one person.

It was found that there are 298 counties which had more than 2,000 persons per physician, but in practically all of these areas they were largely in what have been recently designated as "depressed regions." They include the Southern Cotton Belt, the Appalachian and Ozark mountains, the "dust belt" and "cut over" land in Minnesota and sections of the Rocky mountains. Wherever data have been available, it has been found that the property is heavily mortgaged and there is a high percentage of mortgage delinquency.

## ACTIVITIES OF THE AUXILIARY IN NEW JERSEY

The following editorial appeared in *The Journal* of the Medical Society of New Jersey, September, 1935:

### Projects of the Woman's Auxiliary

The journals of the several State Medical Societies are devoting more and more space to the activities of the Woman's Auxiliaries and their opportunities to promote and support the projects of the medical profession. The articles are usually general in their scope and give the impression that the auxiliary members are expected to initiate independent studies of public health problems and to teach the laity regarding the health activities of their husbands. The very multiplicity of the projects of the auxiliaries defeat their own objectives. Many of the projects sponsored by the auxiliary are not those in which the medical societies are taking the leadership and initiative. The auxiliary is designed to assist the medical societies in carrying out the projects which are originated and promoted by the physicians. Its own pecu-

liar field is to assist the medical societies in carrying out their projects, especially those whose success depends upon the education of the people.

The Medical Society of New Jersey has promoted the activity of the Speakers Bureau, in which the auxiliary is a liaison group between the medical societies and the public health organizations. Physicians realize the need of engaging in public health education; but they hesitate to enter the field because of the lack of an organized system for making contacts with the lay health groups. The auxiliary is the natural group to make the contacts. Specifically, the members of the auxiliary are urged to make the arrangements for supplying speakers to any lay organization which is promoting a meeting to discuss a public health project.

The Parent-Teacher Association is typical of an active group which promotes public health meetings. The local medical society is the natural group to whom the associations should turn for speakers to discuss local health projects. Custom rather than ethics prevents physicians from offering their services as speakers to the lay groups; but doctors will speak to the group if they are invited to do so. The members of the auxiliary are the natural group to make the arrangements for local physicians to address the lay groups. Doctors' wives are active in social lines and are members of the lay health organizations. They are in a unique position of being able to secure the consent of the physicians to address a lay group, provided the doctors are invited by a group to give an address on a particular subject in which the group is interested.

It is not sufficient that an auxiliary shall stand ready to carry out the directions of a medical society. The opportunity of the members of the auxiliary consists in their initiative to propose to a lay group that it invite a physician to give an address at its meeting. There is no doubt regarding the compliance of the physicians with a request from a lay group. The Speakers Bureau fills a real need in carrying out a public health project sponsored by a medical society, such as the Public Health Hour of the Medical Society of New Jersey.

## HYGEIA

*Hygeia* has some very fine material prepared in the way of outlines for talks and programs on a large variety of subjects that may be had by requesting it and paying the return postage.

A list and further information may be secured by writing to the American Medical Association, 535 North Dearborn, Chicago, Illinois.

## SOCIETY PROCEEDINGS

### Decatur County

The Decatur County Medical Society will have a program on Skin Carcinomas and Related Lesions, Tuesday, September 22. Hamilton Montgomery, M.D., and Frederick A. Figi, M.D., both of the Mayo Clinic, Rochester, Minnesota, will present papers on the subject, and the discussion will be in charge of Harry C. Willett, M.D., of Des Moines. The evening program will follow a dinner at the County Hospital. All physicians are invited to attend.

E. E. Gamet, M.D., Secretary

### Linn County Meetings

Two physicians from Johns Hopkins University, Baltimore, Maryland, were guest speakers for the Linn County Medical Society at its first fall meeting held in Cedar Rapids at the Montrose Hotel, Thursday, September 3. Dean D. Lewis, M.D., professor of surgery, spoke on The Diagnosis of Bone Lesions, and Walter E. Dandy, M.D., professor of neurologic surgery, addressed the group on The Diagnosis and Treatment of Lesions of the Cranial Nerves.

On Friday, October 2, the Society will entertain William G. MacCallum, M.D., pathologist of Johns Hopkins University.

### Pottawattamie County

Meetings of the Pottawattamie County Medical Society will be resumed Monday, September 21, when Charles H. Watkins, M.D., of the Mayo Clinic, Rochester, Minnesota, will speak before the physicians on Blood Dyscrasias. Case presentations will be made by Drs. Verne Edwards, S. D. Maiden, and Joseph Stech. The program will follow a six-fifteen dinner at the Mercy Hospital.

### Iowa Academy of Ophthalmology and Otolaryngology

The Iowa Academy of Ophthalmology and Otolaryngology presents the following program to be given at the annual meeting held in Marshalltown, Wednesday, September 16.

#### 9:30 Presentation of Cases

Cataract Extraction—Viennese Technic—

Discussion by—

BENJAMIN F. KILGORE, M.D., Des Moines

Bilateral Suppurative Mastoiditis—

Discussion by—

FRANK H. REULING, M.D., Waterloo  
Meniere's Symptoms—

Discussion by—

ELMER P. WEIH, M.D., Clinton

#### 11:00 Salivary Calculi—

ROLLIN W. WOOD, M.D., Newton.

Discussion by—

JOHN E. STANSBURY, M.D., Cedar Rapids

#### 11:30 Peritonsillar Abscess—

WARREN H. FOSTER, M.D., Clinton

Discussion by—

FRED W. BAILEY, M.D., Cedar Rapids

#### 12:00 Uveitis Caused by Focal Infection—

EDWARD C. NOVAK, M.D., New Hampton

Discussion by—

GORDON F. HARKNESS, M.D., Davenport

#### 12:30 P. M. Luncheon and Business Meeting

#### 2:00 The Acute Chest from the Bronchoscopic Standpoint—

Case Reports—Slides—

THOMAS R. GITTINS, M.D., Sioux City

Discussion by—

JAMES A. DOWNING, M.D., Des Moines

#### 2:30 Symposium "Malignancies of Ear, Orbit, Nose and Throat—

1. Tumors of the Orbit—

P. J. LEINFELDER, M.D., Iowa City

2. Malignancies of the Mastoid and Middle Ear—

HOWARD E. THOMPSON, M.D., Dubuque

3. Malignancies of the Nose and Throat—  
(With Motion Pictures)—

DEAN M. LIERLE, M.D., Iowa City

Discussions by—

WILLIAM W. PEARSON, M.D., Des Moines

WAYNE J. FOSTER, M.D., Cedar Rapids

SUMNER B. CHASE, M.D., Fort Dodge

### PERSONAL MENTION

Dr. Allen W. Byrnes, after a year's practice in Wall Lake, has returned to his former home in Traer, where he will be associated in the practice of medicine with Dr. A. A. Crabbe. Dr. Byrnes was graduated from the State University of Iowa, College of Medicine, and served internships at the state hospital in Mt. Pleasant, and the Iowa Methodist Hospital in Des Moines.

Dr. Robert W. Cooper, who has practiced for the past eleven years at Alton, has accepted a position in the roentgenologic department of the Charity Hospital at New Orleans, Louisiana. His practice will



be taken care of by Dr. C. B. Murphy, who comes to Alton from Granville, where he has completed a year's practice.

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Dr. Paul L. Pascoe has returned to his home town of Carroll to enter the practice of medicine. Dr. Pascoe was graduated from the State University of Iowa, College of Medicine, in 1934, and has completed his internship at the Iowa Methodist and Broadlawns Hospitals in Des Moines.

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Dr. Harold E. Haymond has opened offices for the practice of medicine in Perry, coming from Midwest, Wyoming, where he was superintendent of the Midwest Hospital. Dr. Haymond was graduated from the State University of Iowa, College of Medicine, in 1929, and interned at the University of Chicago, where he accepted a position as instructor in surgery, remaining there for five years.

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Dr. Zella White Stewart, of Iowa City, has just returned from her North Cape cruise, having visited Iceland, the Scandinavian countries, Finland and Russia.

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Dr. Frank R. Senska, after four years of practice in Mt. Sterling, has located in Iowa City.

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Dr. James W. Young, formerly of Newton, has moved to Des Moines, where he has opened offices at 718 Equitable Building.

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Dr. P. L. Parsons, after thirty-three years of active practice in Traer, is planning to retire about September 1. His practice will be taken over by Dr. John C. Herman of Boone, who was graduated from the State University of Iowa, College of Medicine, in 1935, and who for the past year has been interning at the Santa Clara County Hospital in San Jose, California.

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Dr. D. G. Mackie, a recent graduate of the State University of Iowa, College of Medicine, has located in Charles City, for the practice of medicine.

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Dr. Vincent J. Horton of Calmar, delivered a fifteen minute radio talk over Station KGCA, Decorah, Thursday, August 27, on the subject, "Is Your Child Ready for School?"

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Dr. Raymond Gregory of the State University of Iowa, College of Medicine, has accepted a position as

assistant professor of medicine at the Louisiana State University Medical Center, New Orleans. Dr. Gregory has been on the University of Iowa staff for the past three years.

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Dr. T. M. Miller, formerly of Indianapolis, has arrived in Muscatine, where he has opened an office in the rooms occupied by the late Dr. W. W. Stirlen. Dr. Miller is a graduate of the Indiana University School of Medicine, and served his internship in the Indianapolis City Hospital.

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#### DEATH NOTICES

Braunlich, Henry, of Davenport, aged seventy-six, died August 10 after a brief illness. He was graduated in 1883 from New York University Medical College, and at the time of his death was a life member of the Scott County and Iowa State Medical Societies.

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Peters, Warren T., of Burt, aged sixty-six, died August 3, after a heart attack. He was graduated in 1894 from Rush Medical College, and at the time of his death was a member of the Kossuth County Medical Society.

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#### WARNING!

Mr. W. W. Jones, Manager of the National School of Honesty of Des Moines, a collection agency which received the approval of the Medical Economics Committee of the Iowa State Medical Society, several years ago, has requested that this warning be published in the JOURNAL. Mr. W. N. Hiatt, formerly employed by the National School of Honesty, is no longer connected with the organization, and is not authorized to collect or solicit accounts for it. Because of irregularities in Mr. Hiatt's collections, it was necessary to dismiss him, and Mr. Jones is very anxious for this notice to come to the attention of every physician in Iowa, so that no member of the Iowa State Medical Society will engage in any business transactions with Mr. Hiatt.

Such cooperation on the part of a collection agency in maintaining its own good standing and in preventing their clients from being defrauded, is most gratifying, and it is to be hoped that the physicians of the state will show their appreciation of such action by demanding to see the proper credentials from any salesman soliciting their accounts for collection.

# HISTORY OF MEDICINE IN IOWA

*Edited by the Historical Committee*

DR. FRANK M. FULLER, Keokuk

DR. JOHN T. MCCLINTOCK, Iowa City

DR. PAUL W. VAN METRE, Rockwell City

DR. TOM B. THROCKMORTON, Des Moines

DR. WALTER L. BIERRING, Des Moines

DR. WILLIAM JEPSON, Sioux City

## A Medical History of Winnebago County

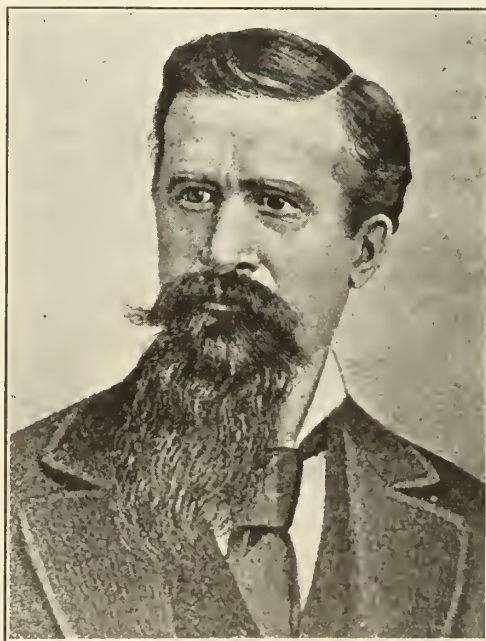
HARRY FRENCH THOMPSON, M.D., Forest City

(Continued from last month)

Justin M. Hull, M.D., son of Rev. O. P. Hull, was born at Albion, Dane County, Wisconsin, June 9, 1845. He enlisted in 1862 in Company L, Third Wisconsin Volunteer Cavalry, and after fourteen months of service was discharged by reason of an injury received at the battle of Prairie Grove, Arkansas. He was married on October 6, 1863, to Mary R. Stewart. He was graduated from the Bennett Medical College of Chicago, Illinois, in 1873. In 1879 he was elected to the state legislature, representing the counties of Worth, Winnebago, Hancock and Wright in the Eighteenth General Assembly. In 1881 he was appointed by Governor Gear a member of the State Board of Health. His term expiring January 1, 1884, he was reappointed by Governor Sherman for a term of seven years, ending January 1, 1891. He was a member of the I. O. O. F., Aurora Lodge, No. 412; also a member of the G. A. R. Dr. Hull was one of the pioneer physicians of Winnebago County, having located in Lake Mills in 1874, and continuing in practice until his death. He was a public spirited citizen, and was identified with any and all interests for the betterment of the community. In addition to the state offices which he filled, he held various county and city offices. While in the state legislature he was instrumental in securing the passage of health laws, and other laws regulating the practice of medicine. The report of the State Board of Health for 1883 contains an exhaustive article on ventilation, the result of painstaking studies by Dr. Hull. He was a man of powerful physique, endowed with an unusual amount of personal magnetism, an apt student of human nature, accurate in his estimate of men, and of a generous social nature. He was

eminently fitted to attract and hold a large circle of friends. He died in April, 1889.

C. E. Keeler was the son of Dr. James Keeler, mentioned in another portion of this history. He was born in Black Hawk County, Iowa, June 25, 1854. He was about two years of age when his



J. M. HULL, M.D.  
1845-1889

father moved to Bristol, Worth County, Iowa, and he spent his entire life in that neighborhood, with the exception of one year, spent in Nebraska. He was graduated from the Keokuk College of Physicians and Surgeons, in 1879. After the year





spent in Nebraska, he returned to Lake Mills where he continued in practice up to the time of his death. Dr. Keeler no doubt "read medicine" under the preceptorship of his father, before taking up his studies at Keokuk, and under such tutelage he imbibed the fundamentals of medicine and the ethics of the profession. From what we can learn of his father and grandfather, he was brought up on a high moral plane, and from start to finish practiced his profession accordingly. He was honored by his fellow townsmen a number of times; was mayor of Lake Mills three terms, councilman three years, and was a member of the school board for so long that "the mind of man runneth not to the contrary." Dr. Keeler died August 23, 1913.

The following story was printed in the Forest City Summit of February 11, 1886:

"Mrs. Torger Sunderland, living four miles south of Lake Mills, was successfully operated upon last Sunday, and an ovarian tumor weighing thirty pounds was removed. The operation was performed by Drs. Gundlach\* and Schooler, the latter of Des Moines. Dr. Keeler of Bristol, and Dr. C. E. Keeler of Lake Mills were present as assistants. The tumor was of about three years growth and the operation was necessary in order to save the life of the patient. In order to perform this delicate as well as highly critical operation, the abdomen was opened from twelve to fifteen inches commencing at a point just above the pubic bone and extending about three or four inches to the right of and above the umbilicus. All the adhesions were separated, the root ligatured and cut off and the tumor removed. After the operation was performed the abdomen was cleansed, the incisions sewed up and the patient made as comfortable as possible. This is the first operation of this kind ever performed in this section, and it was done in a skillful and scientific manner. The patient at last reports was doing well, and it is to be hoped that she may recover."

J. W. David was born in Olney, Richland County, Illinois, February 28, 1841. He was the son of Isaac David, a native of Luzerne County, Pennsylvania, who emigrated to Richland County where he married Cecelia Ruark. By this union eight children were born, seven sons and one daughter. The family moved to Grant County, Wisconsin, in 1846, and engaged in farming. Dr. David spent his youth on the farm, and received his preliminary education in the common schools,

later attending the Platteville Academy for four years, teaching district schools in the winter. He began the study of medicine in 1862 at Rush Medical College, but left the college to enlist in the Union Army, where he served three years and six months. He joined Company B, Wisconsin Volunteer Infantry, and saw service in Minnesota, against the Indians, later was promoted to post hospital steward, and assigned to Frankfort, Kentucky. He was discharged in 1865, and again began the study of medicine at Rush Medical



J. W. DAVID, M.D.  
1841 - 1923



College, from which institution he was graduated in 1866. He married Jennie Green of West Bend, Wisconsin, October 9, 1866. To this union were born three children, Laura, Cecelia and Lister. He began the practice of medicine in Grant County, Wisconsin, immediately after graduation, later moving to Muscoda, Wisconsin, in 1874, where he practiced for six years, moving to Forest City, Iowa, in 1880. In 1885 he moved to Alden, Iowa, where he died April 22, 1923, in his eighty-third year.

Dr. J. A. Hewitt was born in Middleburg, Wyoming County, New York, May 25, 1841. He was the son of Samuel Brewster and Elmina (Tucker) Hewitt. His parents moved to Wisconsin and his preliminary education was received in the common schools and at the Academy at Waupun, Wisconsin. He was married to Ellen

\* W. L. Gundlach came to Lake Mills, Iowa, in 1880. In 1883 he attended Medical College in Philadelphia. He registered in Winnebago County July 20, 1880, as having graduated from the University of Munich in April, 1869. He practiced but a short time in Lake Mills, moving to the state of Washington, where he engaged in the banking business.

Lilly Jones December 7, 1864, and shortly thereafter moved to Nora Springs, Iowa, where with his brother, S. R. Hewitt, he established a drug store. He later entered Bennett Medical College, and was graduated in 1873. He at once began the practice of medicine at Forest City, where he remained until he died, March 8, 1884. Dr. Hewitt was among the better educated of the early phy-

in the common schools of Winnebago County. In 1887 he attended Breckenridge Academy at Decorah, Iowa, and having obtained a teacher's certificate, taught school for several years. In 1899 he entered Hahnemann Medical College at Chicago, and was graduated in 1904. For five years he practiced at Scarville, and then moved to Lake Mills where he spent the rest of his life. In 1905 he was married to Annie Langeland, who died in 1914. Two children were born to this union, Joan and Reuben. In 1919 he married Clara Henderson, who still survives. Dr. Herm was always a deep student and became interested in medical work as a boy. In addition to medical studies, he was interested in geology and botany and enjoyed outdoor sports and interests up to the time of his death. He died at Lake Mills, Iowa, October 20, 1920.

Harry Russell Irish, the son of David and Harriet (Brownell) Irish, was born in Dane County, Wisconsin, October 1, 1860. He moved with his



J. A. HEWITT, M.D.  
1841—1884

sicians, and had earned a reputation as a surgeon, which, had it not been for his untimely death, would undoubtedly have been far reaching. He was stricken with pneumonia and died very suddenly "just at a time when death seemed most unnatural." He was a highly respected citizen, and his death was a great loss to the young community in which he lived.

Gilbert G. Herm was born in Norway, November 18, 1889, the son of Christopher Gillickson and Ingebor (Davidson) Herheim. His parents came to the United States when Dr. Herm was but three years of age, coming direct to Winnebago County, Iowa, where his entire life was spent. He was a precocious infant, being able to read his native language at the age of three. He retained this ability throughout his entire life, and was able to read Scandinavian literature in the original, getting the full benefit of the beautiful metaphors and descriptions that are often lost in translations. His early education was received



GILBERT G. HERM, M.D.  
1889—1920

parents to Jasper County, Iowa, in 1867, and his boyhood was spent on a farm in the vicinity of Kellogg, Iowa. His preliminary education was received in the common schools of Jasper County, after which he was graduated from the Hazel Dell Academy at Newton, Iowa. His pre-medical schooling was obtained, as was the custom at that time, under the preceptorship of Dr. J. R. Smith,

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at Kellogg, and he was graduated from the Medical Department, State University of Iowa, March 7, 1883. He at once entered into the practice of his profession at Forest City, where he spent the remainder of his life. For a short time after coming to Forest City, Dr. Irish was associated with Dr. W. H. Jones. From October, 1899, to October, 1904, he was in partnership with Dr. P. H. Vesterborg. His son, Thomas Judson Irish, M.D., came to Forest City immediately after finishing his internship at the University Hospital at Iowa City, and with his father conducted the Irish and Irish Hospital, an association that continued to the time of the death of the senior member of the firm. Dr. Irish was married to Alice S. Pierce at Cedar Falls, Iowa, April 8, 1887. To this union were born Letia (Mrs. Henry Clausen of Clear Lake, Iowa), and Thomas Judson Irish, M.D., of Forest City. Mrs. Irish died January 14, 1918. In October, 1923, he married his surviving wife, Bertha Petty.

During his lifetime he was the recipient of many honors. He was examining surgeon for the United States Pension Department, official medical examiner for the United States Marine Corps, mayor of Forest City in 1893, and was a member of the school board of Forest City for thirty-six consecutive years, thirty-two of which he served as president. He served as president of the Winnebago County Medical Society on several occasions, and was a member of the Iowa State Medical Society, the American Medical Association, the Austin Flint-Cedar Valley Medical Society, the American Association of Railway Surgeons, and surgeon for the Rock Island Railroad. Dr. Irish was always a close hard student, and was ever abreast of medical progress. He practiced through three medical eras, the septic, with its laudable pus, the antiseptic, with its iodoform gauze, and the aseptic, with its high pressure sterilizers. He performed the first operation for appendicitis in Winnebago County. Because of his careful conservatism as a diagnostician, he had a deservedly enviable reputation as a consultant. After having made his diagnosis, his vast experience enabled him to prescribe remedies most suitable to the condition.

Death came to Dr. Irish in a manner, which we believe he would have chosen, had he been permitted to do so. Always a man of rugged health, he was apparently as well as ever on the morning of October 7, 1929. After his breakfast he walked about his lawn and conversed with his wife concerning some improvements they had contemplated making. He then got into his car and started for his office. He was stricken about

a block from the business district with a fatal heart attack. He must have retained consciousness momentarily, for he threw the car out of gear, applied the brakes, and turned it out of traffic up onto the curb where it stopped just before striking the building. Dr. Irish was one of God's noblemen. He died, respected and honored by his colleagues, and mourned by every man, woman and child in the community; and again, as he would have chosen, he died, literally "in the harness."

John F. Russ was born at Buffalo, New York, May 20, 1866, the son of Christian A. and Elizabeth (Hess) Russ. His parents were Germans, his father having been born in the village of Hielbaum, Kingdom of Württemberg. The family moved to Hardin County, Iowa, in 1869, and Dr. Russ obtained his preliminary education in the country schools, graduating from the high school at Iowa Falls. At the age of eighteen he obtained a teacher's certificate and for a number of years taught country schools in Franklin and Hardin counties. He was graduated from the State University of Iowa in March, 1893, and immediately thereafter began the practice of medicine at Buffalo Center, Iowa. He moved to Iowa Falls in 1912 where he spent seven years in general practice, then one year at Mason City, and in 1921 moved to Blue Earth, Minnesota, where he remained until his death, April 13, 1930. Dr. Russ was a tireless worker all his life, never finding time for vacations. In the early years of his practice he was the only physician at Buffalo Center, and as he arrived there when the town was but six months old, he had his share of pioneering.

The subject of this sketch, Dr. A. T. Bryan, was born in Munsey, Lycoming County, Pennsylvania in 1852, of German-English parentage. In 1855 his parents moved to Warren, Illinois, and in 1859 to Vernon county, Wisconsin, where the doctor grew to manhood, receiving a good public school education and graduating at the Seminary. In the spring of 1880 he entered the Rush Medical College and in 1881 he practiced in Norwalk, Wisconsin, and Arlington, South Dakota, afterward returning to Rush Medical College, where he was graduated with the class of 1882. He located at Egan, South Dakota, in the same year of his graduation where he engaged in the drug business and active practice. In the same year he was married to Miss Ella L. Wait, an accomplished young lady of Egan. In 1890 he went to Crawford, Nebraska, and practiced ten months, then returned to Egan until 1895, when he moved to Forest City, Iowa.

(To be continued)

# THE JOURNAL BOOK SHELF

## BOOKS RECEIVED

**ABORTION, SPONTANEOUS AND INDUCED, MEDICAL AND SOCIAL ASPECTS**—By Frederick J. Taussig, M.D., professor of clinical obstetrics and clinical gynecology, Washington University School of Medicine, St. Louis. C. V. Mosby Company, St. Louis, 1936. Price, \$7.50.

**BASAL METABOLISM IN HEALTH AND DISEASE**—By Eugene F. DuBois, M.D., medical director, Russell Sage Institute of Pathology. Third edition, thoroughly revised, illustrated with 98 engravings. Lea and Febiger, Philadelphia, 1936. Price, \$5.00.

**BEWILDERED PATIENT**—By Marian S. Newcomer, M.D. Hale, Cushman & Flint, Boston and New York, 1936. Price, \$1.75.

**DENTAL INFECTION AND SYSTEMIC DISEASE**—By Russell L. Haden, M.D., chief of the medical division, Cleveland Clinic, Cleveland. Second edition. Illustrated with 63 engravings. Lea and Febiger, Philadelphia, 1936. Price, \$2.50.

**EXAMINATION OF THE PATIENT AND SYMPTOMATIC DIAGNOSIS**—By John Watts Murray, M.D. With 274 illustrations. Second edition. C. V. Mosby Company, St. Louis, 1936. Price, \$10.00.

**AN INDEX OF DIFFERENTIAL DIAGNOSIS OF MAIN SYMPTOMS**—Edited by Herbert French, M.D., consulting physician to Guy's Hospital, London. Fifth edition, with 742 illustrations, 196 in color. William Wood and Company, Baltimore, 1936. Price, \$16.00.

**MEDICAL MYCOLOGY, FUNGUS DISEASES OF MEN AND OTHER MAMMALS**—By Carroll William Dodge, Ph.D., mycologist, Missouri Botanical Garden. Illustrated. C. V. Mosby Company, St. Louis, 1936. Price, \$10.00.

**MEDICAL PAPERS**—Dedicated to Henry Asbury Christian, from his present and past associates and house officers at the Peter Bent Brigham Hospital, Boston, Massachusetts. The Waverly Press, Baltimore, 1936.

**PEDIATRIC NURSING**—By John Zahorsky, M.D., professor of pediatrics, St. Louis University School of Medicine. With 144 illustrations and seven color plates. C. V. Mosby Company, St. Louis, 1936. Price, \$3.00.

**PHYSIOLOGY OF LOVE**—By Professor Paolo Mantegazza. Eugenics Publishing Company, New York, 1936. Price, \$3.00.

**PSYCHOLOGY OF SEX**—A Manual for Students by Havelock Ellis. Emerson Books, Inc., New York, 1935. Price, \$3.00.

**SYNOPSIS OF CLINICAL LABORATORY METHODS**—By W. E. Bray, M.D., professor of clinical pathology, University of Virginia. Thirty-two text illustrations, eleven color plates. C. V. Mosby Company, St. Louis, 1936. Price, \$3.75.

**A TEXTBOOK OF SURGERY**—By American authors, edited by Frederick Christopher, M.D., associate professor of surgery at Northwestern University Medical School. With 1349 illustrations. W. B. Saunders Company, Philadelphia and London, 1936. Price, \$10.00.

## BOOK REVIEWS

### FOOD, FITNESS AND FIGURE

By Jacob Buckstein, M.D., consulting physician in diseases of the stomach and intestines to U. S. Veteran's Bureau Hospital. Introduction by Harlow Brooks, M.D. Emerson Books, Inc., 333 Sixth Avenue, New York, 1936. Price, \$2.00.

During the past decade there have been a number of highly unscientific books on foods and diets introduced into this country. Unfortunately some of these have had the sponsorship or backing of physicians of considerable repute. Much has been said and written concerning various food deficiencies, and the public has become very food conscious. It is not at all surprising that under these conditions the average layman should be carried away by fads and fancies in food which often result in definite physical harm. The author of this book has attempted to discuss this subject without bias, presenting in readily understandable terms certain well established physiologic and nutritional facts of basic importance in the development and maintenance of any form of diet. In attaining this objective the author has held well to the middle course and consequently produced a book of unusual merit. In the closing sections of the volume he reproduces suggestive menus for the reduction of weight, the maintenance of weight, and the increase of weight. While the diets of these routines have a definite caloric background, they are presented in the form of portions, and will require no weighing or measuring on the part of the patient. The book appears to be entirely suited for the purpose intended and may safely be recommended to the laity.

### SEX AND THE LOVE IMPULSE

By J. H. Burns, B. Sc., Psychologist, Children's School, Birling Gap, Eastbourne, England. Emerson Books, Inc., 333 Sixth Avenue, New York, 1936. Price, fifty cents.

This frank discussion of the sex problem is presented with unusual straightforwardness, which will appeal to the lay, as well as the professional, minds. The problem is approached from the standpoint of the love impulse, through growth and development from infancy to maturity, and follows an easy and logical sequence. It presents valuable advice on the child-parent relationship, presenting proved rules on sleep and play, eating and drinking, and elimination. He next discusses the adolescent and the development of the heterosexual or homosexual instincts. His discussion of puberty and the development of sex love is particularly readable and helpful. The final chapter deals with the marriage love and physical union.

### LUFTWEGE, MUND UND OHR

Diagnostik in Tabellenform. By Dr. Alexander Cermach, Facharzt Fur Hals-, Nasen- und Ohrenkrankheiten in Wien. Wilhelm Maudrich, Wien, 1936.

The author begins his discussion by a review of the anatomy and physiology of the nasal passages, the mouth, the larynx and the ear. In succeeding chapters he presents methods and instruments for examination and treatment as applied to these parts.



Valuable suggestions are offered for the visualization and treatment of the larynx, the use of the bronchoscope and tracheoscope, both diagnostically and therapeutically. The author's discussion of methods employed in the treatment of the ear are detailed and noteworthy.

The latter half of the book is devoted to a discussion in tabular form of the various conditions observed in the ear, nose and throat. The tables of differential diagnosis are excellent, but perhaps the most striking feature of the book is the large number of beautifully executed illustrations in color (thirty-eight in number).

We heartily recommend this volume to the physician interested in this particular phase of medical practice.

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#### WHY BRING THAT UP?

A Guide to and from Seasickness. By J. F. Montague, M.D., Medical Director, New York Intestinal Sanitarium. The Home Health Library, 516 Fifth Avenue, New York, 1936.

This volume has been prepared for the layman, and discusses not only the condition of seasickness as such, but many other phases of ocean travel bearing directly or indirectly upon the comfort and equanimity of the traveler and his likelihood of becoming seasick. The volume is written in a spritely and highly readable manner and appears entirely useful for the purpose intended.

The author outlines a common sense attitude toward the malady of seasickness, stressing temperance in eating and drinking and urging a mental attitude devoid of fears as entirely fundamental to the prevention of seasickness. The medicinal treatment of this disease is limited to the use of sodium pentobarbital and sodium nitrite. These drugs, in the author's experience, have proved highly efficacious and it is his belief that seasickness may be prevented or relieved in practically 100 per cent of the cases by their use. While we are not prepared to confirm or deny these observations, the treatment appears entirely rational and worthy of trial, and the general information offered by the author fully justifies its recommendation.

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#### INTERPRETATION OF LABORATORY FINDINGS

By Raymond H. Goodale, M.D., pathologist, City Hospital, Worcester, Massachusetts. F. A. Davis Company, Philadelphia, 1936. Price, \$2.25.

Most texts dealing with laboratory technic as well as most volumes on internal medicine give some discussion of the interpretation of laboratory findings, but to our knowledge no single volume covering this field alone has heretofore been prepared. This present work is divided into four main parts. Part I comprises a discussion of the normal constituents of

the various body fluids and excretions, and methods of interpreting the abnormal values of these fluids. In Part II the diseases are listed alphabetically and under each disease is a list of the results to be expected from laboratory tests pertinent to the diagnosis of the disease. In Part III is presented a brief discussion of the physiologic pathology of the body fluids and excretions, while in Part IV methods for collecting and preparing material for the laboratory are discussed.

The technic of laboratory tests or procedures are not included, since the volume is not intended to cover this field. While the physician who employs laboratory procedures infrequently may feel that the author's discussions are too brief, we feel that the well read or recently trained physician will find the text entirely lucid and pleasingly brief. Every physician employing laboratory service and particularly internes and residents in hospitals should be supplied with this book, since it is our candid opinion that familiarity with its contents will not only lead to a more useful and intelligent demand upon the laboratory, but also avoid unnecessary inconvenience and annoyance to the patient through requests for useless or at least purposeless laboratory procedures.

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#### DENTAL INFECTION AND SYSTEMIC DISEASE

By Russell L. Haden, M.D., Chief of the Medical Division, Cleveland Clinic, Cleveland. Second edition, illustrated with 63 engravings. Lea and Febiger, Philadelphia, 1936. Price, \$2.50.

While a relationship between focal infection and systemic disease was recognized as far back as the time of Benjamin Rush, very little attention was given by the medical profession to this source of danger until the researches and clinical observations of the past ten or fifteen years stressed this subject. As in other new and untried fields, enthusiasm carried certain physicians well beyond the demonstrated facts in the subject resulting in discredit and controversy concerning the rôle played by focal infection, in general, and particularly those classified as dental. In view of these several facts it appears timely that a monograph should appear reflecting both the researches of the laboratory and clinical observation, and that these two points of view should be reconciled and correlated by a physician whose special facilities for observation should permit unbiased judgment in the matter.

Particularly useful to the average physician will be his discussion of those systemic diseases in which chronic dental infection may play an important, if not entirely a causative, rôle. Of definite assistance to these physicians will be the chapter presenting the indications and contraindications for the extraction of teeth or other operations for the removal of dental infection. The laboratory worker will find much of interest in the data supplied from animal experimentation. The volume is well illustrated.

# The JOURNAL of the Iowa State Medical Society

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No. 10

## MENINGITIS\* †

ARCHIBALD L. HOYNE, M.D., Chicago

A diagnosis of meningitis has always been sufficient to inspire the gravest fears concerning the ultimate recovery of the patient. Tuberculous meningitis is almost inevitably fatal, although there are instances in which survival has been reported. Meningitis caused by pneumococcic infection usually ends disastrously, yet the possibilities for recovery are greater than when the tubercle bacillus is the offending organism. Influenza bacilli infections that produce meningitis seldom permit an escape from death. The same may be said in regard to nearly all other forms of bacterial meningitis with the exception of the meningococcic variety.

From a therapeutic standpoint, bacterial meningitis may be divided into two general classes: first, those forms in which recovery can rarely be expected irrespective of the mode of treatment adopted, and second, meningitis in which good response to proper therapeutic measures should be anticipated. In the first class we find the infection due to such organisms as those already alluded to and in addition to a number of others less often encountered. In the second class, the meningococcus is the outstanding example of an organism that may produce meningitis which yields to appropriate measures of treatment. Notwithstanding this fact, the fatality rate for meningococcic meningitis has reached excessive heights in the past. Even as recently as the year 1930, the chief medical officer<sup>1</sup> of the ministry of health, London, reported a fatality rate of 95.1 per cent. In our own country, fatality rates from 50 per cent upward have not been unusual. During the epidemic period in Detroit, for the years 1928 to 1931, inclusive, 1,686 cases were reported with a fatality<sup>2</sup> rate of 50.5 per cent. Of that number, 1,047 were treated in the Herman Kiefer Hospital,<sup>2</sup> and for these the fatality rate was 40.0 per cent. Among

the patients treated in the other hospitals of the city, the fatality rate was 66.9 per cent, and for similar patients treated in their homes, the rate was 71.4 per cent. Other interesting mortality figures are as follows: Missouri, for the year 1929, a rate of 65.3 per cent; in California for the same year, 54.6 per cent. In Chicago, meningococcic meningitis holds a position of constantly increasing importance, as may be seen by the accompanying figures.

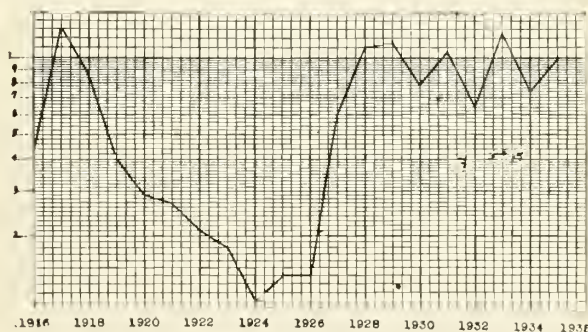


Fig. 1. Incidence of epidemic meningitis in Chicago cases per 100,000 population, 1916-1935.

For the ten-year period prior to 1926, there were reported in this city 1,127 cases, or an average of 112 per year. During that time, the highest fatality rate for any one year (1925) was 72 per cent. The average fatality rate for the period was 50.6 per cent. In the past ten years (1926-1935), the total number of reported cases in Chicago was 2,901, or an average of 290.1 annually. In other words, the number of cases in the second decade had been more than doubled. The actual number of cases and deaths for each year is shown in Table I.

The highest fatality rate for any one year (1926) in the second decade was 65.9 per cent, and the average rate per year was 46.6 per cent. These figures for Chicago demonstrate the trend toward increased incidence and convey some idea of the average fatality rate. Moreover, a somewhat similar situation exists for the entire country. Not since 1929 have there been so many cases of men-

\*From the Municipal Contagious Disease Hospital, Chicago Board of Health, and Cook County Contagious Disease Hospital.

†Presented before the Eighty-fifth Annual Session, Iowa State Medical Society, Des Moines, April 29 and 30 and May 1, 1936.



TABLE I  
CASES AND DEATHS IN CHICAGO FROM EPIDEMIC  
MENINGITIS, 1916-1935

Year	Cases	Deaths	Fatality Per cent
1916	110	46	41.8
1917	335	198	59.1
1918	224	101	45.0
1919	108	47	43.5
1920	79	37	46.7
1921	79	31	39.2
1922	61	29	47.5
1923	55	32	58.1
1924	33	19	57.5
1925	43	31	72.0
1926	44	29	65.9
1927	193	94	48.7
1928	364	181	49.7
1929	387	216	55.8
1930	263	134	50.9
1931	364	198	54.3
1932	227	104	45.8
1933	443	173	39.0
1934	262	95	36.2
1935	354	130	36.7
Total	4,028	1,925	47.8

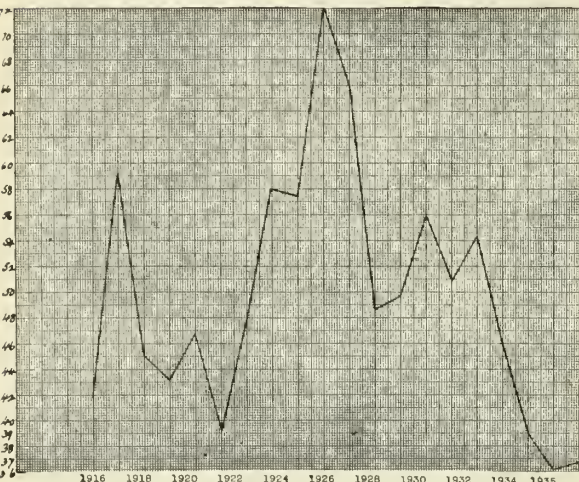


Fig. 2. Fatality per 100 cases epidemic meningitis, Chicago, 1916-1935.

ingococcic meningitis reported in the United States as during the past year (1935). The number of reported cases in the United States in 1934 was 2,302, whereas for the year of 1935, the total surged forward to 5,599. In connection with the reported cases of the past year, a matter of serious import was that the increased number could not be ascribed to one or a few large epidemics within circumscribed areas, but to the wide distribution of the disease.

In the period from 1912-1935, inclusive, we have treated approximately 2,500 patients with meningococcic meningitis in the Contagious Disease Department of the Cook County Hospital and exclusive of 1925, when there were but five patients and no deaths, the annual fatality rate has ranged from 35 per cent to 90.4 per cent. In the year with the very low fatality, there were only twenty

cases. Late in the year 1933, we began to develop improved methods of treatment concerning which I am about to speak. The fatality rate for that year was 38.7 per cent; since then there has been a further decline. The lowered fatality rate at the County Hospital undoubtedly exerted an influence in the reduction to 39.0 per cent for the entire city.

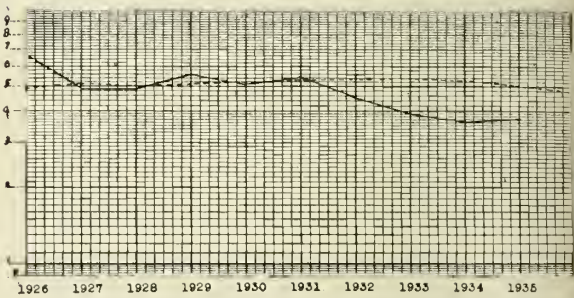


Fig. 3. Expected and actual fatality per 100 cases epidemic meningitis, Chicago, based on ten year moving average, 1926-1935.

Before discussing a method of treatment<sup>3</sup> which we inaugurated in the Contagious Disease Department of the Cook County Hospital and which we are also using in the Municipal Contagious Hospital some reference should be made to the age of patients who are stricken with this disease. Notwithstanding the general impression that meningococcic meningitis is chiefly an infection which attacks infants and young children, a large proportion of our Cook County cases are young adults and older men and women.

It is for this reason that our statistics which include so many adults in whom, because of their age, the mortality rate is generally very high, can rarely be compared with most groups of reported cases that pertain chiefly to children among whom the fatality rate is usually much lower. This is illustrated in Table II, where it may be noted that for 161 cases thirty years of age and under, the fatality rate was 17.3 per cent, and for 118 cases twenty years of age and less, the rate was 15.2 per cent, while for 62 cases ten years and younger, the rate was only 12.9 per cent. This age factor has played an important rôle in the figures of the Municipal Contagious Disease Hospital which during its existence has treated a total of 480 patients, most of whom were in the younger age groups. All of these were admitted during the years 1929 to 1935. The fatality rate for this entire number was 27.7 per cent, a low figure by comparison with the prevailing fatality rates for epidemic meningitis in those years.

From the day that Kolle and Wassermann<sup>4</sup> first produced an antimeningococcus serum in 1906, and when Jochmann<sup>5</sup> did likewise at a later time in

the same year, and Flexner<sup>6</sup> gave it his approval and selected the intraspinal route as the best method for its administration, practically no deviation was made in regard to the method of producing a specific serum, until Ferry's<sup>7</sup> recent achievement. Of equal or possibly even greater interest, is the fact that the administration of serum intraspinally has been regarded as a vital necessity notwithstanding any additional routes that might be resorted to. There have been clinicians who have advocated the use of antimeningococcus serum both intraspinally and intracisternally. Others have believed that intraventricular treatment was of great value in the case of infants. Some, too, have chosen both intraspinal and intravenous therapy. When this was done generally but small amounts of serum were given intravenously, and this serum was injected undiluted. Always, however, the intraspinal route has stood as the foundation stone

of the results secured with the use of Ferry's meningococcus antitoxin are shown in Table II.

Excellent results from the standpoint of recovery may also be obtained with antimeningococcus serum if sufficient quantities are introduced intravenously, but it is my belief that the value of antimeningococcus serum should not be based on bactericidal action. Apparently the response secured from an antimeningococcus serum is due not to any antibacterial action that it may have, but rather to whatever amount of antitoxin it may contain. Partly for this reason we have practically ignored the meningococci *per se* in the treatment of meningococcic meningitis and concentrated our attention on the toxemia resulting from the infection. This attitude is not different from that commonly assumed in the treatment of diphtheria. Consequently, when meningococcus antitoxin is used, we may virtually dismiss the thought of living meningococci from our mind and consider only the toxin that these organisms produce. Therefore, we are not so greatly concerned about the various types of meningococci that may be responsible for the existing infection but have to decide chiefly how much of Ferry's antitoxin is required for the treatment of a patient and by what route it shall be administered.

Although patients on my service in the Contagious Disease Department of the Cook County Hospital have received antimeningococcus serum intravenously in a desultory fashion since the year 1918,<sup>10</sup> it is only within the past two years that our intravenous method has been developed to its present status. On the basis of these two years' experience, I have become increasingly convinced that intraspinal therapy in the treatment of meningococcic meningitis is not merely unnecessary but is actually harmful. For some months past we have not been administering either antitoxin or antimeningococcus serum intrathecally. In this connection, it should be stated that the injection of large doses of either antitoxin or antimeningococcus serum intravenously has produced very favorable results. Since January of this year, thirty cases have been treated in this manner at the Municipal Contagious Disease Hospital with a fatality rate of 20.0 per cent. At the Cook County Contagious Hospital the number so treated in the same period has been fifty-two, with a fatality rate of 19.2 per cent. Previously, one of our observations had been that the smaller the amount of intraspinal antitoxin or serum the more rapid was the patient's stride toward recovery, provided ample quantities of meningococcus antitoxin or antimeningococcus serum were given intravenously. The severity of the disease rather than the

TABLE II

Age	Cases	Deaths	Fatality Per cent	Age	Cases	Deaths	Fatality Per cent
Under 1	4	0	0	41-50	17	12	70.5
1-10	58	8	13.7	51-60	2	2	100.0
11-20	56	10	17.8	61-70	1	1	100.0
21-30	43	10	23.2	71-80	1	1	100.0
31-40	18	11	61.1	Unknown	1	0	0.0
Total	179	39	21.7	Total	22	16	72.7
Grand Total: Cases 201 Deaths 55 Fatality Per cent 27.3							

for the serum treatment of meningococcic meningitis. Furthermore, it has been repeatedly asserted that the value of antimeningococcus serum was due to its antibacterial action. Rarely has anyone questioned this opinion, yet from time to time doubt has been expressed concerning the efficiency of antimeningococcus serum and its failure has often been attributed to a lack of specificity as indicated by its inability properly to agglutinate meningococci. It now seems that these views which for the most part are still adhered to, must soon be relegated to the past.

Ferry,<sup>8</sup> in 1932, demonstrated that the meningococcus elaborates a soluble toxin. He also developed a meningococcus antitoxin by immunizing horses with the toxin injected subcutaneously. Following these accomplishments, he conducted a series of animal experiments and later entrusted to me a supply of meningococcus antitoxin, in order that I might determine its value in the treatment of meningococcic infections in man. This work I have been conducting since November, 1933, and the results<sup>9</sup> have thoroughly convinced me of the worth of this therapeutic agent. Some



age of the patient determines the dosage. In some instances, a total of more than 600 cubic centimeters of antimeningococcus serum was injected intravenously. When this was done, the initial dose usually consisted of 150 cubic centimeters of serum diluted in at least twice its volume of ten per cent glucose, to which ten to fifteen minims of adrenalin were added. More serum was similarly injected by the gravity method on successive days as it seemed indicated. We have given as much as 270 cubic centimeters of antimeningococcus serum intravenously in a single dose. When meningococcus antitoxin was the remedy selected, from 50,000 to 100,000 units were given by the gravity method intravenously, in a dilution similar to that used for the serum. It should be mentioned that meningococcus antitoxin or antimeningococcus serum was administered to alternate patients as admitted to the hospital irrespective of their condition. The only exception to this rule was in those patients who had received serum therapy prior to admission, when a corresponding choice of remedy was adhered to. In many instances only one injection was required. Lumbar puncture was made chiefly for confirming diagnosis or alleviating symptoms of intracranial pressure. When the diagnosis was not confirmed by blood culture, it was established in every case by either smear or culture from the spinal fluid.

One of the outstanding advantages of intravenous treatment is the avoidance of opisthotonos which very rarely occurs. Lumbar punctures which are always a trying ordeal to the patient and, under some conditions difficult of accomplishment, are few, and in some instances even totally unnecessary. With few or no lumbar punctures, we encounter no difficulties arising from blockage, nor do we meet with such injuries to the intervertebral disks as are reported by Pease.<sup>11</sup> Complications are much fewer and recoveries are not only more frequent but also much more rapid. Because of this latter fact, hospitalization is of far shorter duration and, therefore, the cost to the patient or hospital is much less.

Disadvantages of intravenous treatment might include the difficulty which is sometimes presented when attempting the insertion of the needle in an infant or young child whose veins are very small. This, in reality, is not a sufficient obstacle to deter one from the application of a method which is frequently so essential in the preservation of life. Venesection is always justified, and sometimes absolutely necessary. Possibly many would regard the danger of anaphylactic shock as the chief objection to the intravenous method. However, when antitoxin or serum is properly diluted and

adrenalin is added, danger of shock is very slight if the mixture is administered slowly by the gravity method at body temperature. In fact, it seems to me that there is no more likelihood of severe reactions when antitoxin or serum is diluted and correctly given by the intravenous method than when given undiluted intraspinally.

Those who have had no experience with intravenous therapy in meningococcic infections almost invariably find it difficult to accept this method. For them it is hard to deviate from the old established procedure of intraspinal injections. Nevertheless, in an experience of twenty-five years in the treatment of epidemic meningitis it seems to me that intravenous therapy is a marked improvement over the older modes of management. Moreover, the common opinion that continual lumbar punctures are beneficial in this disease and lessen the likelihood of hydrocephalus has been regarded in the light of a fetish. In reality, it is highly probable that frequent removal of spinal fluid is more likely to favor the occurrence of hydrocephalus than to prevent it. The resultant action seems not altogether different from milking a cow. Edema of the brain and excess of cerebrospinal fluid can be much more effectively dealt with by the injection of hypertonic solutions intravenously.

#### SUMMARY

Attention is directed to high fatality rates for epidemic meningitis during recent years; Great Britain, 95.1 per cent in 1930; some of our states 54.6 per cent and 65.3 per cent in 1929. Figures are cited for Chicago during past twenty years.

Figures and tables suggest the increasing importance of meningococcic meningitis in Chicago as elsewhere. Age as a factor is stressed. The fatality rate for 201 antitoxin-treated patients ranging in age from less than twelve months to eighty years, was 27.3 per cent. For 62 of the patients who were ten years of age and under, the rate was only 12.9 per cent.

Emphasis is placed on the value of intravenous therapy; also upon the necessity for massive doses by this route. The intraspinal method of treatment is not approved. For thirty patients treated without intraspinal therapy at the Municipal Contagious Disease Hospital since January 1, 1936, the fatality rate was 20.0 per cent. The fatality rate for fifty-two patients similarly treated at the Cook County Hospital during the same period, was 19.2 per cent.

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MANDELIC ACID IN THE TREATMENT OF BACILLURIA

Its Advantages Over the Ketogenic Diet  
BEN G. BUDGE, M.D., Ames

After the usual disappointments with urinary tract infections, my interest was renewed by Dr. Helmholz,<sup>1</sup> the pioneer in the use of the ketogenic diet in bacilluria. My first case was worthy of, and was welcomed with the zeal of the new convert. The history briefly is as follows: A little girl, eight years of age, was catheterized when she was two days old, and had suffered from urinary disturbances from that time. She was cross, fretful, and undernourished. Her many attacks of frequent and painful urination with high temperature would continue for about four days. These upsets had increased in frequency until she was having more febrile than afebrile days. The uncentrifuged urine was loaded with pus and colon bacilli. With considerable difficulty a ketogenic diet was arranged according to the outline furnished by the Mayo Clinic.<sup>2</sup> She was put on this diet for four periods of four to ten days each, with rest intervals. There have been no more attacks and the urine has remained clear for more than two years. Improvement in the physical condition and behavior has been remarkable. Following this success, about thirty cases of bacilluria treated with the ketogenic diet between July, 1934, and July, 1935, gave very satisfactory results.

While preparing a paper on "The Ketogenic Diet in Bacilluria," my attention was called to an article by Rosenheim in the May 4, 1935, *Lancet*, under the title, "Mandelic Acid in Treatment of Urinary Tract Infections." Treatment with mandelic acid as described by Rosenheim seemed simple indeed when compared with the difficulties encountered with the ketogenic diet. Mandelic acid could not be obtained. Eastman listed it at eight

dollars per 100 grams, but had none for sale and specifically stated that their product was not to be used for medicinal purposes. This difficulty was brought to an end when Dr. I. B. Johns of the Department of Chemistry at Iowa State College volunteered to furnish mandelic acid, which he produced in his own laboratory in a pure state and at a much lower cost.

From July 18, 1935, to September, 1936, forty-six cases of bacilluria have been treated with mandelic acid and ammonium chloride with such satisfactory results that the ketogenic diet has been discontinued. Of the fifty cases that were put on mandelic acid, the following four patients, who were treated with the hope of allaying distress rather than of eradicating infection, are not included in this report: An aged woman with a fractured femur had a complete prolapse and much residual urine; a man, seventy-six years of age, with an obstructing prostate gland and eight ounces of residual urine; a man, sixty-nine years of age, had sustained a minor stroke and was passing gravel at the time the treatment was begun; a woman, thirty-two years of age, complaining of urinary distress, showed motile organisms and some pus. These organisms were many times larger than B.coli. Although her symptoms disappeared and the large motile bacilli decreased greatly in number, they were not entirely absent at the time she discontinued treatment.

In the forty-six cases reported, varying in age from two to seventy-six years and treated by my associate, Dr. Joe G. Fellows, and myself, there have been no failures.\* There has been one known recurrence in a young woman who discontinued treatment against instructions. In a man, forty-three years of age, there was the severe complication of hemorrhage with acute retention, probably from the false passage of a sound in an attempt to dilate a stricture; however, he was relieved of symptoms. These forty-six cases include twenty-one married women, thirteen unmarried women, six girls under twelve years of age, five men and one boy. They appear in Table I grouped according to age and sex.

TABLE I

AGE	MALE	FEMALE	TOTAL
1-5		1	1
6-10	1	4	5
11-15		1	1
16-20		5	5
21-30	1	16	17
31-40		6	6
41-50	2	3	5
51-65	1	2	3
66-80	1	2	3
Totals	6	40	46

\* Cultural methods of determining a cure were not available. Patients have been considered cured when symptoms have disappeared and when repeated examinations of the urine have been negative.



It seems unusual that 34.8 per cent are women in the 21 to 30 year age group. Of the twenty-one married women, three were in their first pregnancies and two in their second. In all cases the treatment as outlined by Rosenheim has been used. The doses of mandelic acid and ammonium chloride for children have been regulated according to size and age. The following prescription has been found convenient, and supplies sufficient mandelic acid in the form of the sodium salt for four days' treatment:

Mandelic Acid	Gm. 48
Sodium Bicarbonate	Gm. 25.6
Lemon	To flavor
Water q.s. ad	500 cc.
Directions: 1 oz. four times a day.	

With mandelic acid, as with the ketogenic diet, best results are obtained with a highly acid urine.\* It has not been found necessary to prescribe ammonium chloride in the amount given by Rosenheim. One gram in water four to six times a day has been sufficient to keep the urine at a  $p^H$  of 5.2 or lower. One sample powder of one gram of ammonium chloride with 60 grams of this salt in bulk is usually prescribed. According to the  $p^H$  of the urine, the patient is instructed to take in water four to six times in the twenty-four hours, a portion of the ammonium chloride equal to the sample powder. This lessens the expense of the treatment. Usually three to four doses of ammonium chloride are given before the mandelic acid is started. As nearly as possible, both medicines are to be taken at regular intervals throughout the twenty-four hours. This insures a low  $p^H$  at all times during the treatment. The fluid intake is not limited, nor the diet restricted. After two days' treatment, the patient returns to the office. Adult females are usually catheterized and the urine from small girls is collected in a clean vessel after the external genitals have been thoroughly cleansed. Centrifuged specimens are examined immediately since no urine is deemed fit for examination that has stood for any time or that might possibly have been contaminated.

If, at the end of four days, the urine is free from pus and colon bacilli, treatment may be temporarily discontinued but the urine is examined daily. Not infrequently, no more treatment will be required. Mistakes have been made by considering some patients cured at this stage (Cases 20, 41 and 45). Best results have been obtained when, after a rest period of one to two days fol-

lowing the first four days' treatment, the mandelic acid is again resumed for another four days' course. In those cases showing severe symptoms or a very high degree of infection, treatment has been continued for eight days and resumed after short rest periods even though the urine has remained clear. Some cases show greater resistance to treatment than others and the duration of treatment has varied from four to thirty days, including rest periods. With mandelic acid as with the ketogenic diet, a few patients will show hyaline casts. These soon disappear when the treatment is stopped.

Mandelic acid appears as a finely granular, highly soluble, white crystalline substance, with the odor of vinegar and a taste not unlike citric acid. It is made synthetically from sodium cyanide, benzaldehyde, sodium bisulphite and hydrochloric acid.<sup>4</sup> It is well tolerated when taken as the sodium salt and only one patient has complained. Rosenheim has demonstrated that all mandelic acid taken by mouth is excreted in the urine.

The cases presented include the first patient, and one recently treated; the youngest and the oldest; one in acute and severe pain and another without urinary tract symptoms; one whose symptoms were of but a few days' duration and another who had had urinary tract disturbance for twenty-five years.

Case No. 1. Mrs. N. H., housewife, twenty-three years of age, May 6, 1935, pregnant six weeks. Reared in poverty, she was a sickly and undernourished child, and states that she had her first infection of the bladder or kidneys at ten years of age. After ten or twelve minor attacks in the intervening years, there was another severe one about May, 1934, and for six months the urine has been cloudy and of a vile odor. Examination showed a delicate but cooperative patient in her first pregnancy with putrid urine, cloudy with pus and motile bacteria. Because of the nausea of pregnancy and our inability to procure mandelic acid, treatment was not begun until July 18, when she was put on mandelic acid and ammonium chloride for twelve days with a one-day rest period. The urine became clear and has remained so since July 28, 1935. On January 24, 1936, she was in the office with her month-old babe; at this time a catheterized specimen of urine was clear, and the physical condition of the patient was excellent.

Case No. 12: Kenneth V., a teacher, twenty-five years of age, November 29, 1935. Usually well and strong, this patient, seventeen days before he was seen, developed pain in the lower mid-back with frequent and burning urination. Acute symp-

\* One drop of 0.04 per cent chlorphenol red is added to 20 drops of the urine. If the color remains unchanged, the  $p^H$  value of the urine is 5.2 or less. If the color changes to a pink or red, the  $p^H$  value of the urine is greater than 5.5 and is not sufficiently acid. The LaMotte Urine  $p^H$  Outfit is convenient in determining the  $p^H$  value of urine.

toms continued for a few days but there was no freedom from distress. He went to bed November 22, had a chill but was able to work on the following Monday, Tuesday and Wednesday. When seen on Thursday, Thanksgiving Day, after an automobile trip of seventy miles, he was acutely ill with a temperature of 102 degrees, severe backache, nausea, frequent and very painful urination. There was much pus and many motile bacilli. Treatment with mandelic acid was begun and on December 1, this patient was free from symptoms, but the urine still showed some pus and bacilli. He was given five courses of treatment of four days each and on January 23, 1936, after no treatment for fourteen days, the urine was microscopically clear.

Case No. 20: Marjorie S., two years of age, January 27, 1936. She was a very active healthy and adorable child, having had no acute illness. For a month, she had been fussy during urination which had been much more frequent. Also, during the past month she had wet the bed several times each night—a new experience with her. She gradually became more cross and fretful and made more and more complaint on urination. The response to the mandelic acid was not prompt but by February 6, the child could control the urine through the day and it was necessary to take her from bed but once at night. The urine was clear and treatment was stopped. On February 18 the child had a relapse, but by February 22, she was improved to the extent that the urine was clear, but the bed wetting persisted to a lesser degree. On September 17 the urine was normal, and there had been no bed wetting since March 1.

Case No. 21: Elizabeth B., school girl, twelve years of age, who had had measles, whooping cough, chicken pox and mild scarlet fever. The tonsils had been removed when she was eight years of age. For five years there had been periods of low grade fever lasting one to five days, with pallor, headache, and exhaustion, but no complaint of urinary distress. The onsets occurred rather abruptly when the child had been feeling unusually well. Attacks were as frequent as two to three weeks. Pus and motile bacilli were always present during an attack, but absent during the intervals between attacks. She was put on mandelic acid February 1, 1936, and no symptoms or urinary findings have been present for seven months—the longest free interval for five years.

Case No. 41: Mark M., a civil engineer, forty-three years of age. The patient suffered week-end attacks of migraine until thyroid extract was administered when a basal metabolic rate of minus 20 was found in 1934. His general health and

physical condition were excellent. On June 6, 1936, he became suddenly and acutely ill with fever, aching and persistent vomiting. By oversight, the urine was not at first examined. The white blood count was low and the case was considered an influenza. After four days, the backache which had subsided, became more severe. Fever returned, and at this time there was frequency and burning on urination. The illness was followed by a period of protracted exhaustion. The urinary tract infection has stubbornly yielded to mandelic acid. A mistake was made here in discontinuing treatment after four days when the urine was first clear.

Case No. 43: D. L., a worker in a farm machinery and repair shop, forty-eight years of age, when first seen April 23, 1932. An appendectomy had been performed in 1909; and he had typhoid fever in 1911. Both legs were fractured below the knees in 1919; right fracture compound, scar broke down and discharged about every six months until 1930. In the past thirty years the knees had been injured by kicks, etc., six times. The right knee was tender, painful and swollen. There was pain in the region of the heart, extending into the left arm after heavy meals and on exertion. The patient's weight was 202 pounds; blood pressure 220/110; and he had infected teeth and tonsils. Motile bacilli and pus were present in the urine. The patient dated his urinary disturbance to 1911 following typhoid fever. First there was backache with frequent and burning urination for one to three days coming at intervals of one to three weeks. He believed there was a slight fever, and attributed his backache to strain from horse-shoeing. Prior to June 26, 1936, many so-called urinary antiseptics had been tried, but the results were nil. On June 26, 1936, he was given mandelic acid and ammonium chloride. On July 1 the urine was clear to the eye and showed only a few pus cells and motile bacilli. On September 20, 1936, after seven weeks without medication, the centrifuged urine was negative. The patient is generally feeling well. His blood pressure is 172/110. He does not rise to urinate at night, whereas formerly he was up two or three times. His anginal pains have almost disappeared. However, all the improvement cannot be attributed to mandelic acid, as his diseased teeth and tonsils were removed in 1933.

Case No. 45: A. F. R., a retired salesman, seventy-six years of age, suffering from angina pectoris. Hemorrhoids, which he had had for thirty years, were successfully treated by injection in 1934. He had been operated upon for biliary tract infection in January, 1936. A very stormy and protracted recovery followed, due to violent wound infection, and acute postoperative retention with



bladder infection following catheterization. He had been catheterizing himself until July 31 when mandelic acid treatment was begun. He has now discarded the catheter and rises but once at night. The urine is entirely negative.

*The Advantages of Mandelic Acid over the Ketogenic Diet*

1. Clark and Keltz of Oklahoma City have given a simplified ketogenic diet for adults that can be used by the general practitioner with excellent results.<sup>5</sup> I have been unable to find such diets simplified or standardized for children. The specialist can order for his juvenile patient a ketogenic diet to be prepared by the hospital dietitian and note the results in the urine reports from the laboratory. For the general practitioner, the task is not so easy and each case must be given personal and painstaking attention. Presuming that he can calculate a suitable diet, he will offer to a sick child a combination of nauseating foods to be prepared and administered by the mother. Mandelic acid is readily taken and well tolerated by children.

2. Success with the ketogenic diet in children can rarely be attained in the home. It is not necessary to hospitalize a child to administer mandelic acid.

3. The standardized ketogenic diet can be readily prepared in any home but the patient when away must depend on eggs and 40 per cent cream. The richest whipping cream is rarely over 36 per cent butterfat and is not suitable for the ketogenic diet. Mandelic acid can be carried in his grip.

4. When any rigid diet is prescribed, minute details must be explained to procure the patient's cooperation. If this is important in diabetes and obesity, it is much more important with the ketogenic diet, with which gum, toothpaste and chewing tobacco must be forbidden. Mandelic acid requires no dietary restrictions.

5. The patient who is placed on the ketogenic diet is told that he may expect to become sick on the second day and often it is necessary to stop the diet temporarily because of persistent nausea. The longer mandelic acid is taken, the better it is tolerated.

6. The ketogenic diet is contraindicated in diabetes, angina, biliary tract disturbances and in elderly people with arteriosclerosis. Mandelic acid can be used in these conditions.

7. The results from mandelic acid are equal in every way to those obtained with the ketogenic diet.

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## INJECTION TREATMENT OF HERNIA

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The earliest treatment of hernia by the injection method was done by Pancoast, who mentions it in his work on Operative Surgery published in 1846,<sup>2</sup> wherein he states that eleven years before that date, or in 1835, one hundred and one years ago, he had employed that method. His technic was the injection of a stimulating solution directly into the sac by means of a minute trochar to which he later adapted a syringe. The solutions mentioned were Lugol's solution of iodine, and the tincture of cantharides in quantity from one-half a dram to a dram. The mention of the use of a truss, which is considered so essential today, was omitted.

The next mention in the literature was that of Bigelow, professor of surgery at the Massachusetts Medical College, in 1850,<sup>3</sup> wherein a case was described of a young man twenty-one years of age who had had a left inguinal hernia for three years. During the last year he had been wearing a truss. When the truss was removed the hernia descended and formed a mass the size of a goose egg. The amusing thing about the case is the lack of encouragement given the patient concerning the chances of a cure. He was told, "That the operation was not dangerous; that it probably would not cure him, though it might alleviate the inconvenience; the last perhaps greatly, perhaps not at all." The instrument used was one developed by the author several years before and consisted of a minute silver syringe terminating in a fine tube. This fine tube was in reality a fine trochar and with it he made the puncture and delivered the injection. Tincture of iodine in the quantity of twenty-five drops was the solution injected. It was placed at the ring (external or internal is not mentioned) and from the context of the paper one must conclude that only one injection was so made. He further mentions a case wherein a slough of the integuments occurred as a result of the injection of ten drops of the same solution in a young child.

A significant fact is found in that Bigelow had exactly the same understanding of the purpose and mechanism of closing the break as we understand it today. He recognized the fact that one cannot tell exactly whether he is injecting the so-

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lution directly into the sac or not and that even if the solution is spilled in the surrounding tissues, the important feature is that inflammation must be produced, and whether it results from contact or contiguity of tissue is of no great importance. He states that he had heard of no fatal results although he did admit that peritoneal inflammation was occasionally very marked.

Following Pancoast and Bigelow came Heaton<sup>4</sup> who was given credit for the most extensive work on injection treatment of hernia as well as for the most patients. The ethics he used gave him a black name and helped to throw this method of treatment into disfavor for many years. An idea of his unpopularity is shown in the writings of Manley<sup>7</sup> who in 1893 said: "One of the most notorious and remarkable charlatans that ever posed before the American public, was Heaton, of Boston, Massachusetts. For fifty years he was known far and near; and during that time plied his craft with such large measure of success that the herniated, from all sections of the United States and Canada, of all castes and classes, flocked to him for succor and to be cured, so that in a short space of time he reaped a large fortune. He claimed that hernia of every description was curable; and at least convinced the people that such was the case. Not finding the West a congenial atmosphere for his progress he emigrated to Boston; and on his arrival had the audacity to invite the representatives of the medical profession to see him perform his operations. They did not accept his invitation and he at once became a martyr.

"So deep-rooted and widespread with the faith, which even the medical profession had in this strange individual, that finally the American Medical Association was forced to take action . . . Hence a committee of the American Medical Association was appointed to wait on Dr. Heaton, request permission to see his operations and report their observations on their utility and value.

"This was in the year 1851. The committee was composed of Drs. Geo. Heywood, J. Mason Warren, and Samuel Parkman. Heaton declined to permit the committee to witness any of his operations, or give them his secret nostrum.

"The committee, though they were unable from any inspection made, either to admit or deny the efficacy of any of Heaton's claims, reported at the next meeting, 'that there is no surgical operation at present known, which can be relied on with confidence, to produce in all instances, or even a large proportion of cases, a radical cure of reducible hernia,' \* \* \* commenting on which, later, Dr. Heaton says: 'I affirm to be false *in toto*.'

Dr. Joseph H. Warren of Boston, a follower and close pupil of Heaton's, describes his (Heaton's) method as used at that date, 1879, as follows:<sup>5</sup> "With the old instrument of Dr. Heaton, I injected on the right side about twenty minims of the fluid extract of quercus alba, which had been evaporated to the consistency of glycerine, and united with an eighth of a grain of morphine; on the left side about fifteen drops were injected.

"In about six hours after the injection the patient began to grow feverish and restless; pulse running to about ninety, temperature to about one hundred. This condition continued for about three days, when it began gradually to subside. The urine was passed naturally, and a natural passage of the bowels took place on the sixth day. There was some swelling and redness over the hernial ring, extending up over the abdomen obliquely to the crest of the ilium. Dr. Emery attended the case, I seeing the patient occasionally. He administered one-eighth of a grain of morphine at bedtime to secure rest, and cold water was constantly applied over the seat of operation by means of a compress. A rapid and successful recovery took place, with a perfect cure of the ruptures, and on the twenty-third day of July the patient came to my office when a temporary truss was ordered."

In further discussion of the injection treatment, Dr. Warren spends much time on the type of needle used. He greatly approved the blunt "bradawl" pointed needle of Dr. Heaton but improved upon it by devising a needle also blunt pointed and oval in cross section. Throughout its length it was twisted on itself so as to give a spiral effect and thus enter the tissues easier, particularly in those cases demanding more than one injection wherein scar tissue is encountered in the subsequent treatments. This needle was also pierced by ten openings on its sides to allow for a more even distribution of the solution during the injection. At the attachment to the syringe was a swivel joint to allow for turning of the spiral when piercing the tissues.

Swelling over the injected areas was common and often reached the size of an inverted saucer and assumed a dark maroon color. This was considered lightly and treated by cold water applications. Occasionally it resolved into an abscess, but usually not. Following treatment such patients remained in bed until this swelling had receded and then were allowed to arise and could go about their work wearing a truss or support of some sort, having meanwhile been cautioned against coughing, straining, heavy lifting, and experimenting to see if they could cause the rup-



ture to reappear. One injection was considered a permanent cure if the rupture remained closed for a year or more. If it reappeared further injections were indicated.

In comparison with today's technic one can hardly miss noticing the large volume of fluid injected. Similar tannic acid preparations used today are injected in minim doses preceded by local anesthetic, and no attempt is made to complete the operation in only one injection.<sup>5</sup> The solutions used by the above men were Lugol's solution of iodine, tincture of cantharides, tincture of iodine, and fluid extract of quercus alba. All of these were strong solutions and the only attempt to alleviate pain was Heaton's use of morphine.

McDonald<sup>9 and 10</sup> in 1905 was the first man to stress the wearing of a truss. He claimed cures in 90 per cent of his cases. His solution was used extensively and is still popular. It was the solution of choice by Bratrud and McKinney at Minnesota<sup>32, 33, 35, 44</sup> before they developed proliferol. It consisted of the following two forms:

McDonald's No. 1

Lloyd's Sp. Tinc. Calendula...	25 parts
Alcohol .....	25 "
Phenol .....	50 "

McDonald's No. 2

Lloyd's Sp. Tinc. Thuja.....	25 parts
Alcohol .....	25 "
Phenol .....	50 "

Between 1905 and 1925 there were no publications of any works dealing with injection of hernia, although it was during this period that McDonald, Mayer, and Pina Mestre were doing that work extensively and building up the successes which later were to cause a rejuvenation of this method. Pina Mestre<sup>11</sup> claimed some 8,000 cases during twenty years' experience. He used a solution of his own designing in which the active principles were tannic acid and alcohol according to the analysis of Neiderl of New York University.<sup>18</sup>

Hall<sup>18</sup> using the Pina Mestre solution gave us our first true pathologic investigation of the injection of irritating solutions by experiments on guinea pigs, dogs, and monkeys at New York University and Bellevue Hospital. Histologic sections showed a proliferation of endothelial and connective tissue cells together with large mononuclear phagocytes and foreign body giant cells. Only one section showed any trace of the injected fluid. To quote: "A striking feature of the histological sections was the evident efficacy of the injection fluid in stimulating regeneration of striated muscle."

Just prior to this, Ignatz Mayer of De-

troit<sup>12, 13, 14, 15, 17</sup> published a series of articles recording the results of thirty years' experience and giving the following simple formula:

Mayer's Solution

Zinc Sulphate.....	1 dr.
Penol Crystals .....	6 dr.
Glycerine C. P. ....	4 fl. dr.
Aqua Cinnamoni.....	1 fl. oz.
Fl. Ex. Pinus Canadensis (dark) ..	.5 fl. dr.
Sterilized C. P. redistilled water ..	2 fl. oz.

This formula was later adopted and used by such men as Quillin,<sup>39</sup> Gray,<sup>30</sup> and tried for a time by Bratrud.<sup>35 and 44</sup>

The solutions most in use at the present time are tabulated below:

\*Proliferol—containing C. P. tannic acid and four botanical tinctures, benzyl, alcohol and thymol.

Synlasol (formerly sylasol)—a sodium salt of psyllium seed.

McDonald's Solutions—as given above.

\*Pina Mestre—containing alcohol, 98 per cent, the remaining 2 per cent being composed of Tr. Krameria 25 per cent, Tr. Katechu 16 per cent, Tr. Rosa Canina 15 per cent, Tr. Rosa Centifolia 15 per cent, Tr. Monesia 15 per cent, and Vaccinium Myrtillus 14 per cent.

Mayer's Solution—as given above.

\*Galtanol—with the active principle of plant gallic and tannic acids.

Those solutions starred require an injection of local anesthetic preceding their use. Dosages vary with each solution and range from minims to cubic centimeters.

#### TECHNIC

The earliest technic of injections began by invaginating the scrotum, hooking the index finger in the external ring and then following along its edge with a long needle and thus entering the canal. At the present time that method is not used to any great extent although it is frequently recommended for beginners. The majority of treatments are today given through the abdominal wall transfixing the muscles and fascia and going directly to the point desired. Invagination of the scrotum is used as a guide to follow the needle point and is particularly valuable in injecting the external ring and Hesselbach's triangle. The trans-abdominal method is used by Rice,<sup>36</sup> Bratrud,<sup>44</sup> Larson,<sup>40</sup> Quillin,<sup>39</sup> Girard,<sup>56</sup> Fowler,<sup>41 and 42</sup> Bigelman,<sup>47</sup> and Harris and White.<sup>58</sup> Most men have also adopted the practice of directing the

needle caudalward when starting the injection, taking advantage of the peritoneal deflection at the pelvic brim, and thus lessening the liability of entering the abdominal cavity. The author, in addition uses a blunt three inch spinal needle as an escape from entering vessels or the cord. The further advantage in the blunt needle lies in its telltale feel as one drops through the fascial layers. The disadvantage comes in piercing the skin initially at which the patient usually voices some objection, and in later injections when one runs into difficulty if he attempts to transfix scar tissue. The latter is overcome by making the deeper injections early in the course of treatment following later with those more superficial.

Bratrud at Minnesota<sup>44</sup> and Harris and White in San Francisco<sup>58</sup> stress the placing of the initial injection at the external ring and working up to the internal ring closing below and pushing the sac, so to speak, before them. Others begin treatment at the internal ring and later move toward the external ring, saying that if the truss holds the hernia reduced there is little danger of causing an incarceration and that it does present the advantage of showing the patient early that the treatment is benefiting him. In treating private patients this is a potent factor because in most cases after the initial injection at the internal ring the hernia is never seen again, and to patients somewhat skeptical of the method at the start, this is something they can grasp hold of and proudly tell their friends. Time alone, however, will tell which procedure is preferable. Theoretically the external ring should be attacked first but in practice it seems to work equally well either way.

Needles of all lengths have been advocated for this work. The author prefers to use one needle for all cases feeling that skill is better developed in that way. Because a three inch needle is used, naturally does not mean that the full three inches are injected in each case. One soon learns the feel of the tissues through which he is passing and the longer needle gives the advantage of starting higher on the abdominal wall directed caudalward with less likelihood of entering the peritoneum while still reaching the point desired. It also makes it possible to circumvent or go beneath any blisters or hair follicle pustules that may occasionally arise beneath the truss. The intent of the treatment is to irritate the fascia or connective tissue primarily and not the muscle. Granted that the muscle layers are very thin in this location, nevertheless the attempt is made to deposit the solution just before piercing or just after piercing the fascia at the rings and surrounding the canal. This involves careful knowledge of the area, and careful consideration and estima-

tion of the thickness of the wall in each individual patient. The easiest mistake is to place the injections too shallow and while this makes a firm, more palpable scarring, it is not successful as is evidenced in the case cited by Rice<sup>45</sup> which later came to operation where it was found in Dr. Rice's words: "At the internal ring the fascia and scar tissue extending from the cord was spread out fan-wise to become continuous with the internal oblique muscle, thereby keeping the internal ring open at its point of exit from the peritoneal cavity. It was clearly evident in this case that we had gotten no results because the injections were placed superficial to the internal oblique muscle at the internal ring instead of deep to this structure where the hernial sac dips down to become continuous with the peritoneal cavity."

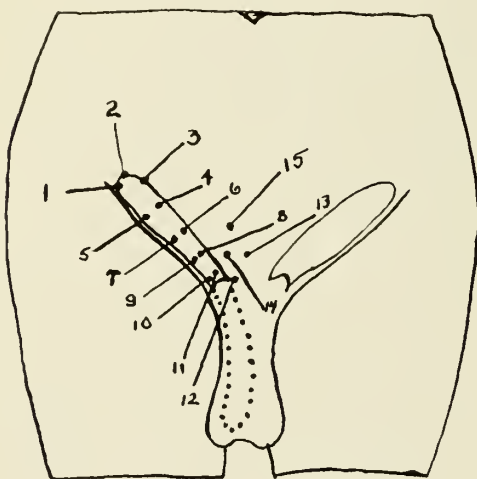
McDonald in 1905<sup>9</sup> stressed the absolute necessity of wearing a truss prior to treatment, during the treatment, and for sometime thereafter. This admonition still holds. Probably eight out of ten trusses fitted by drug stores or self fitted after the mail order arrival, do not hold. Lack of understanding of the mechanics of hernia is the chief cause. Measurements for a truss are taken by running a tape around the hips one and one-half inches below the crest of the ilium and bringing it down to the pubic bone in front. When fitted it must be comfortable and conform to the patient's body. Any amount of bending and twisting of the truss may be necessary before this is accomplished. Many is the patient who will voice great surprise when the pad is placed "way up high" over the internal ring in cases where they have been wearing the pad over the external ring and even riding the pubic tubercle. Each physician treating hernia by this method should either fit his own trusses or train his neighborhood druggist or supply man or accompany his patient to the supply depot and fit him there himself. A proper fitting truss is the most important part of this treatment and until this point is mastered one should go no further.

Before treatment is instituted one should insist upon the patient wearing the truss day and night for at least one week. In this way you assure yourself that the patient can comfortably wear the truss and what is more important you insure against treating what appears to be a reducible hernia while in reality it is not. It happens occasionally that there is omentum in the sac and that it seemingly reduces, but, as a matter of fact, it is adherent at the neck of the sac. Wearing a truss over this will not hold the hernia in its apparent state of reduction. It will invariably slip out and the patient will have pain; the physician receives the warning that something is



wrong and he should not proceed with injections. In my estimation the wearing of the truss successfully is the greatest aid in the diagnosis of reducibility.

As a convenience in recording the site of the injection a rough sketch is used by the author to show diagrammatically where each injection was placed. This is naturally only approximate but it is a handy reference when one is ready to give subsequent treatments. Some men use small squares of tape or tattooing with mercurochrome over the site of the needle puncture, but this presents the disadvantage of marking only where the needle enters and is of no use whatever, when a three inch needle is used on a marked slant.



ADVICE TO PATIENT

Drawing from the experience of others as well as my own, a set of instructions has been drawn up and a mimeographed copy is given each patient. I allow the removal of the truss at night after the fourth injection. Sponge baths are advised because most patients object to buying an additional hard rubber truss to wear during a bath. This type of truss is not successful for continuous wear. Patients are also warned against coming for treatment with the bowels full of gas because of the possible protrusion of viscera at the time of injection. A copy of my instructions to patients follows:

1. The truss should be worn next to the body, removed in bed and put on in bed.
2. Patients with large hernias, or fat patients, or those with large abdomens should wear their truss night and day. Others may remove their truss at night after the fourth injection.
3. The truss should be worn tight enough so that the pad pressure will produce a depression in the skin.

4. If the hernia becomes painful or if you are distressed by wearing the truss report for examination at once.

5. The hernia must be held back at all times.

6. Bathing should be done by sponge baths until such period when the truss can be removed for a tub bath or shower.

7. Wash the skin carefully beneath the pad with rubbing alcohol several times a day and before retiring and on arising. Talcum or zinc stearate powder may be dusted over the area. Cotton may be used beneath the truss at any point if it is uncomfortable.

8. Do not come for treatment with the bowels full of gas. Always move the bowels several hours before appearing for treatment.

9. It is best to receive treatment on an empty stomach.

10. Avoid taking cold, getting the grippe or flu or any affliction that will cause you to cough. If you do contract such a disease keep your truss on all the time day and night and do not take it off until you have received permission from your physician.

11. You will be able to continue your regular occupation, but if you do any heavy lifting see that the truss is in proper position.

12. The number of injections varies from six to twelve in most cases.

13. The truss should be worn six months after the last injection.

14. At the end of this period return for a check-up.

15. It is also advisable that you report for examination every six months for about two years.

16. If, at any time, a recurrence develops you should return at once for examination or communicate with your physician.

The solution that I have employed is slynasol, formerly called sylasol. The dosage has never exceeded two cubic centimeters although I have seen three cubic centimeters given with no untoward effects. Injections were started at the internal ring in all cases and following the first injection there has never been a reappearance of the hernia to date in any case. In addition, there has been to date no cord swelling, abscesses, testicular atrophy, hydrocele of the cord, incarcerations, or bowel perforations. Pain following injection has never occurred except in three instances and in each of these it was subsequent to injection at the internal ring and was undoubtedly due to spilling of the solution into the abdominal cavity. One case occurred one hour after the injection, was not severe, and was promptly relieved when the patient laid down for a short time. The other two instances occurred in an easily excitable patient

and the first time caused severe cramping pain in the lower abdomen, profuse diaphoresis, and pulse acceleration relieved only by morphine sulphate one-fourth grain, and hot wet towels. All symptoms had passed away within an hour. The second time this patient was so affected the pain came on much slower, about fifteen minutes after the injection, and lasted thirty minutes, never reaching the intensity or severity of the first instance.

Several things can be learned from this experience. First, any injection of local anesthetic to mask the pain of other types of solutions would be wasted if the solution entered the abdominal cavity and the pain would be more severe. (No local anesthetic is used prior to synasol.) Second, all precautions used at the time of injection such as requesting the patient to tell you at once if he feels any pain radiating up over the abdomen toward the umbilicus would be too early in most cases because such pain does not arise at once during the injection but appears ten to fifteen minutes later and after the solution is all injected.

Ruptured patients can practically all take treatment by injections if their hernia is reducible and *if they can wear a truss*. Some of these patients who cannot wear a truss without discomfort can be treated intensively by absolute bed rest and daily injections for a week or more, but one must proceed carefully and be sure he is not dealing with a case of adherent omentum as described above. Patients with diabetic or cardiac conditions can be treated if controlled. Hemophilia, active venereal disease, ascites, skin infections, and irreducibility are definite contraindications. Last but not least is the failure to wear a truss successfully for a definite period.

#### CONCLUSIONS

1. History of the injection method shows it to have grown gradually with improvement and now to have reached a point where it has been proved anatomically, pharmaceutically and surgically sound.

2. There are many good solutions now on the market and out of the experimental stages.

3. Use of a blunt needle directed caudalward possesses many factors of safety.

4. Beginning injections at the internal or external ring is optional, as evidenced by present results.

5. Injections must be placed deep enough if results are to be obtained.

6. Fascial irritation, not muscle irritation, is the intent of the treatment.

7. Wearing the truss successfully is the greatest aid in the diagnosis of reducibility.

8. Complications are practically nil.

9. Injections at the internal ring are most likely to be followed by painful reactions.

10. Contraindications other than irreducibility are practically nil.

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#### REGIONAL (DISTAL) ILEITIS

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Attention was directed to this condition recently by Crohn<sup>1</sup>, and his associates. Many cases have been recorded since his first report, but only a few cases had been reported previously. The disease appears to be of recent recognition and is important because of the unknown etiology and its relation to appendicitis. The clinical diagnosis is very difficult and the best treatment is not yet well known.

Regional ileitis has been defined as a granulomatous inflammation of unknown etiology, which involves the distal ileum in most cases. It appears that this condition was first described by Dalziel<sup>2</sup> in 1913 as chronic interstitial enteritis. Moschcowitz and Wilensky<sup>3</sup> in 1923 described it as a nonspecific granuloma of the intestines. Crohn and his associates reported it as regional ileitis in 1932, which is the most common name given to this condition at present. Bockus and Lee<sup>4</sup> suggested that it was a terminal ileitis, and Erb and Farmer<sup>5</sup> described the condition as an



ileocolitis. It appears that distal ileitis would be the preferable term, especially from the clinical point of view. The distal portion of the ileum is involved in most cases, but the cecum, appendix or other parts of the intestines may be affected in some cases. The diagnosis and treatment are not so difficult when other parts of the bowel are affected. If a specific organism is found to be the cause of this condition then the name could be an ileitis of the particular causative organism.

#### ETIOLOGY

The essential cause is unknown, but several organisms have been suggested as the possible cause. A colon bacillus cultured by Ross<sup>6</sup> from the intestines of his patient was agglutinated by the patient's serum in a dilution of 1 to 320. Erb and Farmer obtained a colon bacillus from the peritoneal fluid of a fatal case which was agglutinated by serum from two cases. In one of these, agglutination occurred in a dilution of 1 to 1280. The serum from two other cases and controls did not agglutinate the bacillus. An anaerobic streptococcus was cultured by Mixer<sup>7</sup> from the peritoneal fluid, an enlarged lymph gland, and the deep surface of an intestinal ulcer in a case of eight weeks' duration. Binney<sup>8</sup> also found streptococci as well as other organisms in his cases. A dysentery bacillus has also been suggested as the cause of the disease. Felsen<sup>9</sup> found agglutinins in positive titers for the dysentery bacillus in fourteen cases of distal ileitis. He considers this disease a characteristic form of a chronic dysentery infection. A tuberculous infection has been ruled out in many cases by cultures and guinea pig injections. Evidence of syphilis and actinomycosis have been absent in these cases. Nevertheless it appears that many of these cases have previously been diagnosed as tuberculous or one of the above mentioned infections. Amebic infestation has not been excluded in many cases.

The predisposing causes are as uncertain as the essential cause. It has been found to occur most frequently in young adults, but may occur in children as young as five years of age, and others over sixty years of age have been reported to have had it. The relation of appendicitis to this disease is not understood, but many of the patients have had an appendectomy before the true condition has been recognized. The diagnosis and treatment of cases of chronic appendicitis become of especial importance in relation to this disease. It has been suggested that disease of the appendix may easily involve the distal ileum because of the close relation of the blood supply. Other suggested causes are an anomaly of the blood supply, a neuromuscular disturbance, or an un-

usual mobility of the terminal ileum. These may impair the blood supply and predispose to a chronic or even an acute infection.

#### PATHOLOGY

There are acute and chronic stages, and characteristic findings are not well understood at present. The gross findings in a few early cases have been reported to consist of a primary ulcer on the mesenteric side of the distal ileum. The process is believed to extend then into the mesentery and along the bowel upward for several inches. The ileum becomes red and swollen, the mesentery is congested, thickened and contains many large lymph nodes in some cases. At later stages the lumen of the bowel becomes constricted because of the scarring. Perforations or fistulae may occur, which make the diagnosis and treatment difficult. The microscopic sections present changes similar to those of the chronic infectious granulomata. The important laboratory findings consist of a leukocytosis from 10,000 to 15,000, a moderate secondary anemia, and small amounts of blood in the stools at irregular intervals. The x-ray findings may be the "string sign" or filling defect in the distal ileum and the dilatation of the loops of bowel above the constriction.

#### SYMPTOMS

The most common complaints are abdominal distress and an intermittent diarrhea in a few of the early cases. There is a mild irregular fever and a moderate anemia in chronic cases. There may also be loss of weight and asthenia. The early symptoms may be identical to acute appendicitis, but the later symptoms are those of intestinal obstruction. Upon examination, a scar of a previous appendectomy is found in nearly half of the cases. A slightly tender mass or evidence of fistulae may be found in the lower right quadrant. Signs of obstruction may also be obtained.

#### DIAGNOSIS

A correct diagnosis is very difficult but essential for the proper treatment. In many cases the diagnosis has been made only after an exploratory operation and thorough pathologic study. In the early cases it resembles a gastro-enteritis or the so-called "intestinal flu," or it may simulate appendicitis. As the disease progresses, especially in young adults, tuberculosis is often suspected. Tuberculosis cannot be excluded until a complete pathologic study is made in such cases. When large lymph glands are found at the operation, Hodgkin's disease or lymphosarcoma must be considered. Those presenting fistulae or sinuses are very much like actinomycosis and the differential diagnosis is not easily made. In older patients it

may resemble syphilis or carcinoma of the ileocecal region.

#### TREATMENT

At present the treatment is individual in nature, and must be guided by the general surgical principles used in the treatment of inflammations and obstructions of the intestines. Simple exploration has apparently cured a few patients over a short period of observation. Simple appendectomy has also apparently cured some patients although many patients have had an appendectomy before the diagnosis was made. Enterocolostomy has been used with success in a few cases where removal seemed impossible. Drainage of abscess pockets or sinuses has given temporary relief. Resection of the affected part has given the best results in skilled hands, although it is often very difficult because of the many adhesions and fistulae. There is also considerable danger of hemorrhage because of the vascularity of the tissues. The danger of infection and peritonitis is always present in such extensive operations, and has given a high mortality rate in several instances where the operation was delayed.

#### PATHOLOGIC SPECIMENS

The specimen in Fig. 1, was removed from a woman forty-four years of age, who had first noticed severe abdominal pain and distress about



Fig. 1. The tumor mass sectioned into two nearly equal parts. At B is the ileum whose lumen is larger than it is an inch further up. At C is the cecum with a thickened wall. At A, D, E and F are the appendix, lymph nodes blood vessels, and diffuse scar tissue respectively.

four weeks previously. She tried laxatives for what was thought to be "intestinal flu," but the pain gradually increased in severity and she went to her physician after a few days. He tried dietary measures with no better success. About ten days later her physician noticed a mass in the lower

right quadrant and x-ray examination gave evidence of obstruction in the region of the ileocecal valve. A few days later at St. Luke's Hospital, the roentgenologist was unable to get barium to pass from the cecum into the ileum. It was thought that there was a malignancy in the region of the cecum, and an exploratory operation and removal if possible was recommended. The mass which consisted of the cecum, three inches of the distal ileum, and the appendix was removed. She made an uneventful recovery and has remained well since leaving the hospital. The microscopic sections easily ruled out a malignancy, but tuberculosis was not so easily excluded. There was

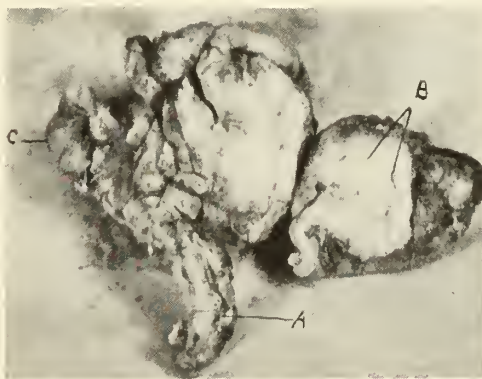


Fig. 2. This shows the distal portion of the ileum at B, with a very thick wall and many blood vessels. At A is a normal appearing appendix, and at C is the cecum with very little involvement.

extensive connective tissue proliferation, with many round cells and leukocytes scattered through the sections. The foreign body type of giant cell was not found, although such cells are often found in this condition by others. The gross and microscopic appearance was not characteristic of tuberculosis and the diagnosis of regional ileitis was finally made.

The specimen in Fig. 2, was removed from a girl fifteen years of age. She had been troubled with gastro-intestinal disturbances for nearly a year. She also had a positive tuberculin reaction, but the lungs were negative in the x-ray examinations. It was thought that she had tuberculosis of the cecum with intestinal obstruction, and exploration and possible removal was advised. The appendix in this case was not apparently involved and the cecum was only slightly affected. The distal portion of the ileum was very much congested and the wall was thickened. The lumen of the ileum was constricted and the microscopic sections revealed a diffuse nonspecific type of inflammation. The patient has gained weight and feels better than she has for over a year.



## SUMMARY

Regional ileitis appears to be a rather common disease although it has not been recognized as a disease entity until recently. Many cases no doubt have previously been attributed to tuberculosis in younger patients or carcinoma in older people. The etiology is unknown and its relation to appendicitis requires further study. The morbid anatomy has no specific characteristics and the diagnosis of regional ileitis can be made only after excluding such diseases as tuberculosis, actinomycosis, syphilis, Hodgkin's disease, lymphosarcoma or carcinoma. The best treatment appears to be surgical removal of the affected parts, but this is a major operation and carries a rather high mortality. Specimens are presented from two cases. The clinical diagnosis was carcinoma in the older patient and tuberculosis in the young girl.

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## THE WOMAN PHYSICIAN IN A CHANGING WORLD\*

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"A handful of millions of years ago" a beam of light from our own sun star impinged upon a speck of mud, colloidal mud, in the warm and shallow edge of the ancient, receding sea. A curious thing then happened to this historic bit of slime—it quivered, it thrilled to life! A short while ago another ray from this same sun started in motion the machinery of a gigantic spectacle upon the shore of an inland sea. This spectacle was the product of the jelly-like colloidal brain and the puny hand of a creature whose direct progenitor was this previously mentioned bit of sensitized primordial slime. This event is a symbol of the amazing fact that the brain of man has been able to harness and bring under an increasing degree of control the source of its own origin and energy.

Before descending from our intellectual flights to a more concrete consideration of our "chang-

ing world" and the rôle of the woman physician in the present status of the scheme of things, let us briefly summarize our cosmic story. Korzybski says man is the time-binding animal, the first creature to become aware of past and future; therefore he is able to leave cumulative records of his life, a social heritage to his posterity. Each man leaves a world changed in some degree for better or for worse because of his having lived. We are witnessing and sharing in a dramatic spectacle. We see how man has girdled, and harrowed, and leveled the surface of the earth, often to his own disaster, as seen in our present dust and floods. He harnesses the rivers and streams of earth; he spans its oceans with cable and ship and wings; he forces the earth to bring forth food and man is fed as never man was fed before. With his group brain man has created cities, sky scrapers, newspapers, books, apartment houses, Ford cars, frigidaire, factories and poison gas. He has also produced morphine, ether, and antitoxin, the x-ray and the microscope.

One feature of this boiling, toiling, tumultuous struggle of life is the cruelty involved in the chaining of the spirit to its physical prison, from which it ever seeks release. One of the insistent phases in the evolution of life from the earth is the ever present preying of life upon life. So must the balance of power be maintained, even among weeds and amebas. The human organism with its socially sensitized brain is now engaged in trying to regulate this primitive force and this is an outstanding item in the present "change." We begin to envision a time when human reproduction and human survival will be so smoothly attuned to world-environment that all may live out a normal life-span; a time when the conditions of health, such as food, air, social security and medical care—will be the inalienable rights of all alike. In short we envision a time when the peoples of the earth shall be one people, bound together by solidarity of interest, and exercising a composite intelligence. Visionary? Yes, but let us keep our vision; without it we certainly perish! The vision lights the way before; the cruel whip of necessity drives behind. Starvation and pestilence have been the keenest incentives to scientific and practical research. Evolutionary progression, nay, survival itself seems to be in a sense, flight from pain. Medical science has its roots in the very basic human wish to escape from pain. Next to the search for a God who shall protect us from the calamitous forces of Nature, comes the search for a physician, a superman, to relieve our suffering. Ever the medicine man has lain hold of all accumulated human wisdom and human beliefs and tried to turn them to

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the relief of man. Lacking scientific knowledge he first borrowed from the realm of supernaturalism and of theology; he experimented empirically with the herbs of the earth, and with the slow progression of human knowledge, he has in his modern exponent, the physician, applied chemistry, biology, physics, and lastly, neurology and psychology to relief of human ills. Most significant of all, within the memory span of each of us medicine is becoming a science not only of the cause and cure of disease, but the science of positive health, based upon a knowledge of optimal function and optimal conditions for function—a science of preventive medicine. Actually medicine has become the king of sciences. No other profession is now so entrenched in the entire spread of human knowledge. No other human calling requires such firm grounding in integrated biological, physical, chemical, and psychologic science; such long and arduous preparation; such rigid selection as to quality of intelligence and personality; or exacts so much in zeal, devotion, and concentration.

Given this foundation and this preparation, the spread of application ever widens not unlike the development of the embryonic heart as it throws its vital fluid through blood-tubes, then develops arteries, then capillaries which carry nutrition to every cell, only to double back to the source of power. No matter what the direction of selective interest the medically trained person has the proper and effective point of departure in basic science to which he ever must return.

Our specific interest, this evening, is the rôle of the woman physician within this challenging field which reflects so widely the dynamic character of our changing world. In a group such as this we may safely start from the premise that woman is no longer seriously inhibited, limited or hampered professionally or socially by the fact of her sex. Such remnants as still persist of prejudice and superstition are fading out. She is generally conceded the right to exercise her powers and plan her life in any manner she may elect. The fact remains, however, that, in spite of equal rights with man, she is not man, but woman. I think one of the richest fruits of liberty and equality under the law is the discovery that woman may, by virtue of her difference from man, now truly supplement and complete man's social and scientific work, rather than duplicate or compete with it.

The social emancipation of woman together with the changes in the social order have precipitated the home and career dilemma. The mechanization of the home, the regulation of child-bearing, the simplification of infant care, the group education of the toddler, all have loosened the bonds and lengthened the tether of domesticity. Women are

rapidly becoming able to make a success of the home and still perform their work in the world, a matter which has been speeded up by the stringency of the past six years. To be sure these drastic social changes are doing things to marriage. Perhaps it is on the way to becoming a servant instead of a master. Lacking statistics, I will hazard the opinion that the modern professional woman achieves domestic happiness and success quite as often as does the woman whose energies are completely concentrated on her domestic situation, on her mechanized home, her two children (or a wire-hair terrier), and on vapid, inane social life. The worst feature of the present situation for the young woman who elects medicine as a career is the almost inevitable delay to normal marriage occasioned by the long, arduous and expensive years of preparation. A man student can, and often does, marry a woman who contentedly and enthusiastically devotes herself, not only to the problem of feeding two for the former price of one, but who often keeps her job and actually helps to pay his bills. We have not yet arrived at a status of such complete equality that the woman medical student wants to or can marry a man who will be content to subordinate his life to her career. This enforced delay in the normal completion of life is probably one factor, it may even be a chief factor, in restraining women from entering medicine. Above all we do not want our medical women to substitute career for marriage and home; this would be equivalent to establishing a new and highly antisocial order of celibacy, and it would be a supreme social disaster. Somehow intellectual men and women must together solve this problem of vital mutual interest. Each must be free to create but each has need of the other, and life must go on. The situation is all too new for complete solution. There must be time in which, shall we say, to experiment and test results.

Granting that woman's creative life is necessarily colored by her femaleness, and that it should be so colored, how does this affect her rôle in medicine? Let us keep ever before us the fact that modern medical science is the science of life and of living itself, broad and deep and high as the expanding universe; but in one sense an applied science, applied to cut fingers and aching heads and running noses, and also to the urgent matter of optimal living and positive health. What of woman's intrinsically feminine qualities may be capitalized in the practical and theoretical application of science to living?

It requires more daring than the speaker possesses to hazard an analysis of "femaleness." We will timidly and tentatively mention a few characteristics only and that in the full consciousness that



exceptions are supposed to prove the rule. It is commonly said that woman is intuitive, man the reasoner. It is probably true that women are prone to draw quick conclusions from what the psychologists now call subconscious reasoning. There is age old sanction for this since woman has ever lived by her wits and has not been expected to reason. This was partly because she had to bring up her children and conduct her home through combined intuition and empiricism; she had no basis of established factual knowledge with which to reason. By the law of natural selection, the intuitive ones survived. The propensity to draw quick conclusions, colored by emotional insight is an unsafe substitute for basic knowledge and orderly method, but it is a tremendous help to both. One application of intuition is vicariousness, the ability to put one's self in another's place and know just how the other feels. Lacking this no doctor, no matter how erudite and highly trained, can see his patient as a whole, can penetrate the often critical interspaces of personality. No one lacking considerable measure of this trait should ever attempt to minister to those in physical or mental distress.

Granting, for the purpose of our thesis, that woman is strongly endowed by nature or training or both, with intuition, imagination, and vicariousness, it would seem that she should be particularly useful in situations involving the intimate relation of the individual to other individuals and to environment, such as general bedside care of the sick in their homes; all phases of psychiatric work, behavior clinics, and medical social work. Because of her time honored maternal and domestic function we should expect women to claim obstetrics and pediatrics as their own. Curiously enough women seem to be fighting shy of both. We do have Rachelle Yarros and others to demonstrate that women can succeed in obstetrics in spite of the physical hardships and emotional strain involved. It is difficult to understand why women are not flocking into pediatrics. I think not half of our state departments of child hygiene are filled by women. Logically women should elect to care for women and children. I feel certain this will come. Because of their domestic predilection women physicians should do well in institutional administration, and they do if they do not attempt to specialize in too many unrelated fields.

Because the fingers of women seem made for deftness, and her brain keyed to fine coordinations she should do well in surgery, and she does as far as the mechanics of surgery goes. We see brilliant operative work by some of our women surgeons. In general, however, major surgery

demand a massive concentration of vitality and attention with a trained inhibition, a complex which woman shows on occasions such as child-bearing and emotional crises, but which she does not easily produce on demand. Women are doing well in laboratory research, x-ray, radium, etc., where dexterity, order, and exquisite precision are required. For the same reasons women should do particularly well with eye, ear, nose and throat work. Women should be entering the fields of immunology, bacteriology, endocrinology, allergy, blood chemistry, nutrition; and we do have an Alice Hamilton, a Florence Sabin, a Zella Stewart and others. Perhaps the traditional distaste of women for chemistry and physics has here something of a restraining influence. It is sometimes said that women are not contributing to medical research and it is thereby deduced that women lack interest and capacity for original work. This does not necessarily follow. For one thing I am not certain that in proportion to the numbers of each sex graduated from medical schools, women are so far behind. Research, like other human effort, is instigated by necessity—the need for something not yet known. When women have found their place a little more securely and certainly, they too, will need new knowledge and will be driven into search.

The big immediate field for the medical woman, however, as the speaker sees it, is the field of positive health and preventive medicine; the application of this unified science of which we have spoken, to the intimate, personal living of everyday people. Doing this ramifies into all aspects of public health administration, into clinical and dispensary work, into school health work, into industrial hygiene, into life insurance examinations, into student health service in colleges, into the teaching of hygiene, and the administration of health education in any and every sort of group; into every aspect of social security involving health. This leads us to wonder if we are now training in our medical schools enough women to meet the demands about to be precipitated by the social security act? The expansion of the infancy and maternity program alone will open a wide field for women pediatricians, behavior specialists, feeding specialists, parent education specialists, and so on. The net result of the social security program should be to draw a flood of our most able young women into medicine. It will draw only superior women since, fortunately, the present screening process in the medical schools is so drastic no weakling can survive. If the situation could be presented to young women generally during the period of vocational decision, surely nothing could have more challenge and more appeal!

than the tremendously basic matter of placing all science at the service of human living.

It is going to be interesting to see what happens when the 74,000 Russian women pediatricians now in training by the state, are integrated into the population of Russia. It will be even more exciting to see how our own fine, emancipated young women rise to the American situation out of their own initiative. We who are in the field should be prophets crying in the wilderness. The young women about us should know what we have to tell them. I wonder if we are making our voices heard? I wonder if we have the true vision of science: a unified science, touched with the alchemy of imagination and sympathy and made to serve and not destroy. Herein lies the secret of the survival of the human race, for science can destroy, and there is danger right now that it may destroy its own creators.

The diseases of war and crime and poverty are one with physical disease and all must be attacked and overcome by mass action of the whole people. The effective technic for doing this and raising the level of human living rests in the hand of the scientist, but notably and particularly, in the hand of that specialist who can apply all the sciences to human living—the medical scientist. Indeed, the social, medical and educational sciences are merging into one superscience of human living. It was said long ago, "The proper study of mankind is man." Since Nature, in what we must accept as her infinite wisdom, has decreed that woman shall bear and nourish the young with her body, and guide their early training, she has a unique place in the scheme of things. She, of all mankind needs most to study man; needs the help of this new superscience of life and living. Women in medicine must see their magnificent opportunities, and join hands with women in elementary education and women in nursing and in children's social work. Together they have it in their power to bear a new generation from the womb of the mind, as well as the body, a generation nourished from the inexhaustible breast of scientific knowledge, but knowledge transformed for its specific purpose by the alchemy of the female mind, as woman must ever transform the elements of her body for the nutriment of the young of the species. Woman may never equal or excel man in his own specific fields, it is entirely unimportant that she should be able to do everything he does as well as he. She is wasting her time and making a foolish gesture even in trying to demonstrate this sort of equality; but she must enter this rich field which is hers from the foundations of the world, this place in a changing world which she alone can fill.

A STUDY OF 198 CASES OF FEMALE GENITAL MALIGNANT TUMORS

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In order to evaluate the effectiveness of our methods of treatment of malignant neoplastic tumors, we have recently studied every case of female genital malignancy admitted to the University Hospital during the period from July 1, 1926, to July 1, 1930.

*Carcinoma of the cervix:* There were 123 cases of carcinoma of the cervix which was the most common form of malignancy, comprising 62.1 per cent of all female genital malignancies and 78.3 per cent of all uterine carcinomas. Thirty-one of the 123 patients had received some form of therapy for the cervical lesion prior to their admission to the University Hospital, while 92 individuals received all their treatment in the clinic. The diagnosis of carcinoma was made on clinical findings without biopsy in twenty-one patients, twelve of whom had received some treatment before admission. In most instances, the local and easily accessible tumor tissue had disappeared and it was not felt justifiable to perform a major operation to obtain material for histologic study. Nine of the patients who had no biopsy were treated entirely in the clinic and the full responsibility for not obtaining tissues for microscopic study is ours. None of the twenty-one survived for five years; hence, they are not included among the five-year survivals but are counted as cases of carcinoma. Ninety-three, or 91 per cent, of the cervical cancers were of the epidermoid type, while nine were adenocarcinomas.

All cases were grouped clinically at the first examination according to the Schmitz classification, as follows: Group I, the lesion was entirely limited to the cervix; Group II, the growth was doubtfully localized in the cervix but there was no palpable infiltration of the parametrial tissues; Group III, there was definite palpable invasion of the parametria with some restricted mobility of the cervix; and Group IV, there was marked infiltration of the parametria with uterine fixation, or invasion of the rectum or bladder, or evidence of metastases.

Schmitz Group	No. of cases	Five year survival	Per cent
I	6	6	100.0
II	13	7	53.8
III	60	9	15.0
IV	44	0	0.0

The nineteen patients in Groups I and II (15.4



per cent) were classified as "operable." (Schmitz\* has reported a group of 486 patients admitted to Mercy Hospital, Chicago, up to January, 1927, with an operability rate of approximately 20 per cent.) Twenty-two patients with proved carcinoma of the cervix were alive and free from recurrence at the end of five years. It is interesting to note that this number includes 100 per cent of Group I, 53.8 per cent of Group II, 15 per cent of Group III, and none of Group IV cases. The uncorrected five-year survival rate was 17.8 per cent, which is lower than reported by many clinics. By eliminating those patients who had received treatment elsewhere, and considering only those for whom we had full therapeutic responsibility, the five-year survival rate was 23.9 per cent, a figure which compares favorably with the survivals in other clinics. In any series, the results of therapy depend largely upon the number of early cases treated, and improvement can be expected only when more patients can receive adequate therapy before the local lesion has extended beyond the cervix.

Treatment varied greatly, but, in general, it was planned to give approximately 4,000 milligram hours of radium to the cervix in two separate applications, and to follow this treatment with four courses of deep x-ray therapy. In thirty-one cases where there was a large exophytic growth extending into the vagina, the actual cautery was employed to destroy the cervical portio prior to irradiation.

#### TREATMENT OF CARCINOMA OF THE CERVIX

Type of treatment	No. of cases	Five-year survival	Per cent
X-ray	10	0	0.0
Radium	10	1	10.0
Cautery and x-ray	8	1	12.5
Cautery, radium, x-ray	23	4	17.4
Radium and x-ray	39	14	35.8
Hysterectomy and x-ray	2	2	100.0

The most effective treatment was a combination of radium and x-ray. Among 39 patients treated by this method 35.8 per cent were alive and free from recurrence at the end of five years. When the portio was destroyed with cautery before irradiation, the five-year salvage was only 17.4 per cent. These two groups are sufficiently large to make the data significant. More recently the use of the cautery has been discontinued and the local tumor has been treated with x-ray therapy prior to the radium application. This method largely eliminates the necrosis and sloughing which follow cauterization and make the application of radium more difficult and dangerous, and less

effective. The other groups of patients, in whom the treatment was more selective, are too small to give an accurate indication of the effectiveness of the treatment employed. Many of those who had radium alone did not return for x-ray therapy, while those who received only x-ray therapy usually had more advanced lesions.

Of the ninety-two patients treated entirely in the clinic, sixty-three are known to have died during the first five years, and seven patients could not be traced. Among the sixty-three traced fatal cases, the average time from the beginning of treatment until death was 14.4 months. Fifty-two per cent died within the first year, and 30.2 per cent within the second year, while only 17.5 per cent lived longer than two years. Forty per cent of the Group II cases, 44.1 per cent of the Group III cases and 80 per cent of the Group IV cases died within the first year. It is evident that those patients, who do not respond well to treatment, have a rapid recurrence or spread and die usually within the first two years. In spite of the poor end results in the advanced cases (Groups III and IV), it is believed that practically all patients should be treated, since radiation therapy frequently serves to prolong life and may clear up the local lesion, thus eliminating the offensive and annoying vaginal discharge and bleeding. One patient in Group IV lived for twenty months after treatment was started.

Among the thirty-one patients treated elsewhere before admission, seven had had simple abdominal total hysterectomies, and five vaginal hysterectomies, while eight had had radium applied to the cervix and two had received some x-ray therapy in addition to radium. Moreover, nine patients had been treated by operations totally inadequate for treatment of cervical carcinoma. For example, one woman was subjected to bilateral salpingo-oophorectomy and two others to supravaginal amputation of the uterus. In general, it may be said that no operation except the Schauta or Wertheim enlarged hysterectomy in which the entire uterus, both adnexa, upper vagina, and most of the parametria are removed, is adequate for the treatment of carcinoma of the cervix. These thirty-one patients all received additional therapy in the clinic except one absolutely hopeless case. Sixteen were given deep roentgen therapy, ten a combination of radium and x-ray, and four radium, while one had only symptomatic treatment. None of this group survived five years.

In three patients, the cancer occurred in a cervical stump, an incidence of 2.4 per cent. In each instance, more than five years had elapsed between the subtotal hysterectomy and the appearance of

\*Schmitz, Henry: *Obstetrics and Gynecology*, edited by C. H. Davis, W. F. Prior and Company, Hagerstown, Maryland. Vol. III, Chapter 20, page 106.

the malignancy. The maximum incidence was between forty and forty-nine years of age, and the average age was 46.7 years. The youngest patient was twenty-four and the oldest seventy-three years of age. Cancer of the cervix is mainly a disease of the menopause and of the few years preceding and following. The average number of pregnancies was 4.8 and the average number of full-term deliveries 4.2. Only 4 per cent had never been pregnant. Uterine myomata were associated with cervical cancer in seven patients, an incidence of 5.6 per cent. In each instance, the myomatous uterus was so large that there could be no doubt of the diagnosis. Small irregularities and slight enlargements of the uterus were not considered, since they are so frequently seen in patients of the cancer age.

In ninety-four cases, the first symptom was bleeding and in twenty cases leukorrhea. Four first complained of pain, one of backache, two of urinary incontinence, and two of prolapse. Abnormal bleeding, particularly metrorrhagia, should lead to a suspicion of cervical malignancy and invariably demands thorough investigation. Any unusual leukorrhea, especially if the discharge is watery and foul, should be studied even though there are many benign lesions which can be responsible.

*Carcinoma of the body of the uterus:* Thirty-four cases of corpus carcinoma were admitted during the years under consideration. The ratio of corpus to collum carcinoma was 1 to 3.6, which is approximately the incidence reported from other clinics. Thirty-one of these tumors were glandular carcinomas (adenocarcinomas). Biopsies were not obtained from three patients, in whom the findings and history strongly suggested carcinoma of the body. None of the three survived for five years; hence, they are not included in the five-year survivals but are counted as cases of corpus carcinoma. At the end of five years, ten patients with corpus carcinoma were alive and well and free from recurrence, a five-year survival rate of 29.4 per cent. Excluding the five patients, who were originally treated elsewhere and none of whom survived five years, the survival rate is 34.4 per cent.

In general, the treatment was selective and several methods were employed. The preferred treatment was total abdominal hysterectomy with bilateral salpingo-oophorectomy combined with irradiation therapy. Fourteen patients were treated after this plan and seven (50 per cent) survived for five years without recurrence. Five received irradiation therapy before operation, and nine

postoperatively. In addition, four patients were treated by total hysterectomy with removal of the adnexa, one by supravaginal amputation plus irradiation therapy, six by x-ray and radium, two by x-ray therapy alone, and one by radium alone. Irradiation therapy, when used alone, was employed only on patients who were obviously poor operative risks or were completely inoperable. One patient was so far advanced that only symptomatic treatment was advisable. Among the five patients who had been treated before admission, two had had x-ray, one radium, one simple total hysterectomy and one supravaginal amputation. Four were given further irradiation therapy but one received only palliation. None survived a five-year period.

Corpus carcinoma occurred most frequently in the group of fifty to fifty-nine years of age, and the average age was 52.8 years. The youngest patient was twenty-eight and the oldest seventy-four years of age. There were five patients under the age of forty years. Carcinoma of the body in contrast to carcinoma of the cervix is most common following the menopause and may be regarded as a disease of old age. The average number of pregnancies was 2.1, and the average number of full-term deliveries was 1.5. Twelve patients, or 35.3 per cent, had never been pregnant. In thirty-one patients, the chief early symptom was vaginal bleeding, while three complained only of leukorrhea. Uterine bleeding following the menopause is very suggestive of corpus carcinoma. In seven patients (20.6 per cent) body cancer was associated with myomata.

*Sarcoma:* Three patients had sarcoma of the uterus; in two the malignancy arose from the endometrium and in the third there was sarcomatous degeneration of a leiomyoma. One case of mucosal cell sarcoma is extremely interesting. This patient was curetted on the twenty-first postpartum day for bleeding and sarcoma was diagnosed by several pathologists. Total hysterectomy with removal of both adnexa was performed and followed by two courses of deep x-ray therapy. This patient was alive and well and free from recurrence five years later. The sarcoma originating in a large intramural fibroid nodule was diagnosed after the uterus had been removed by supravaginal amputation. Postoperative irradiation therapy was given. This patient has survived for five years without evidence of recurrence. The third case was diagnosed by curettage done for postmenopausal bleeding. This patient was treated with x-ray and radium and lived only four months.

*Chorionepithelioma:* This condition occurred in two patients; in one it followed an incomplete



abortion, and in the other the expulsion of a hydatid mole. Both patients were treated by hysterectomy. In each case the tumor was entirely localized to a small area in the fundus of the uterus. Both patients survived five years free from recurrence.

*Ovarian carcinoma:* Fourteen, or 7.1 per cent, of the tumors in the series were ovarian in origin. The patients ranged from nineteen to sixty-nine years in age, the average being forty-seven years. The average number of pregnancies was five. Only two were nulliparous. The most common symptoms were abdominal pain and tumor. In eight patients, carcinoma was diagnosed microscopically, while in six no histologic examination was made. Three of the latter were operated upon elsewhere and came for deep x-ray therapy, and the others, who came originally to the clinic, were not subjected to operation, and consequently no tissue was available. The treatment varied considerably. In two patients unilateral oophorectomy was followed by x-ray therapy, while two others were treated by unilateral oophorectomy without irradiation therapy. At laparotomy two patients presented inoperable tumors, and only tissue for examination was removed. Two patients had subtotal hysterectomies with bilateral salpingo-oophorectomies, and one of these had subsequent x-radiation. Three individuals who had been operated upon elsewhere received only x-ray therapy. One inoperable case was treated entirely by x-ray therapy, and two others were given only symptomatic treatment. Three of these patients were alive and free from recurrence after five years, but only one may be considered a five-year survival (7.1 per cent), since the other two did not have microscopic diagnoses.

*Carcinoma of the vulva:* Twelve patients with carcinoma of the vulva were seen during the period. The average age was 57.4 years, with extremes of thirty-eight and seventy-eight years of age. All were parous women, the average number of pregnancies being three. Seven of the twelve patients noted itching as the first symptom, and it was felt that the malignancy had developed in a pre-existing leukoplakia. Five patients complained chiefly of ulcerating tumors and had no history or findings suggesting an etiologic relationship to leukoplakia. Microscopic study was possible in ten cases, but no biopsy was obtained in two patients who had been treated prior to their admission to our clinic. In two, the epithelial cells had no tendency to produce pearls, while in eight there was considerable keratinization and pearl formation. Two patients were treated with x-ray therapy alone, four with local excision with an endo-

therm knife plus x-ray therapy, one by radical vulvectomy, one by simple vulvectomy followed by x-ray, and one hopeless case was treated symptomatically. Of the three patients who had had local tumor excisions before admission, two were treated with x-ray therapy and one with intravenous colloidal lead. No patient with vulvar carcinoma was alive and well at the end of five years. This limited experience in treating carcinoma of the vulva has led to discontinuance of local excision of the tumor followed by x-ray therapy to the regional glands. Radical vulvectomy with bilateral gland dissection is now the treatment of choice.

*Carcinoma of the vagina:* There were four cases of primary carcinoma of the vagina, an incidence of two per cent, which is slightly higher than most clinics report. In three patients the tumor was an epidermoid carcinoma, while in the fourth patient no biopsy was obtained. Two patients had received irradiation before admission and were given further irradiation therapy. Of the two patients treated entirely in the clinic, one received x-ray therapy and the other only symptomatic treatment. None survived even a two-year period following institution of treatment.

*Carcinoma of the tube:* Carcinoma of the fallopian tube was the rarest of all genital malignancies, only one case being recorded in the series. This patient was treated by supravaginal amputation of the uterus combined with bilateral salpingo-oophorectomy. Two courses of deep x-ray therapy were given postoperatively. The patient lived thirteen months.

*Undifferentiated pelvic carcinoma:* There were five cases of such extensive pelvic malignancy that it was impossible to ascertain the location of the primary tumor, although it was felt that it was not uterine in origin. All the lesions were far advanced and were considered hopeless. Four received symptomatic treatment and the fifth some irradiation therapy. All five patients died within a few months.

If the results of the treatment of cancer are to be improved much in the future, it will be necessary to make an early diagnosis and institute therapy as soon thereafter as possible. Cancers which are purely localized in their growth can usually be cured, but when they have spread to contiguous structures there is less hope for favorable end results. Treatment should also be adequate so that all cancer tissue is either entirely removed or destroyed. Inadequate operations and insufficient irradiation lead eventually to recurrences and a rapid spread of the cancerous process.

## THE USE OF TRICHLORACETIC ACID TO OBLITERATE BLEEDING POINTS UPON THE NASAL SEPTUM

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To eradicate permanently a bleeding point upon the nasal septum with trichloroacetic acid is an easy matter when the correct technic is used. Its safety, effectiveness and easy application should, on the basis of clinical evidence covering a period of thirty-five years, justify a claim for its more universal use. In applying it the operator need not be afraid of destroying the submucous tissues nor of doing injury to the nasal septum. He must remind himself that trichloroacetic acid does not readily attack normal tissues but will obliterate loosely protected capillaries which are responsible for the majority of nasal hemorrhages not resulting from traumatism or operation.

Every physician has among his patients those who at times complain of having nosebleed. The attacks may be mild or severe and may occur at varied intervals. Regardless of the fact that epistaxis may originate from a varied etiology, the immediate concern of the physician is so to manage the treatment that the hemorrhage is quickly stopped, that it shall not recur, and that no damage shall have been done to the underlying tissues. If, because of inexperience with this remedy, a recurrence of the epistaxis does take place no harm will have been done and the operator is at liberty to be more thorough in his next attempt.

These patients usually call at the physician's office and inform him that they have nosebled at times. Practically every physician has a head-mirror, a nasal speculum and a frosted electric light globe by which to inspect the anterior nasal chamber. These hemorrhages, as a rule, always occur upon the cartilaginous portion of the nasal septum and usually on its concave side. The bleeding point is usually from a half inch to an inch within and can readily be seen by the examiner. Why these broken capillaries should be nearly always found on the concave side where they would seem to be most protected is a matter of speculation. Usually a small blood clot may be seen around the spot where the last bleeding took place. A cotton tipped probe holding five or six drops of 1-1000 adrenalin is allowed to touch the tissues around the clot which becomes softened by the adrenalin solution. Then with a fresh swab saturated with adrenalin the clot may be slowly but gently worked away without doing violence to the exposed capillaries. The adrenalin will then more effectively come in contact with the former bleeding surface and no further hemorrhage is usually encountered.

If oozing should start again pressure upon the bleeding point by the adrenalin saturated cotton-tipped probe will stop it if continued for a few moments. The procedure must not be hurried. The five per cent cocaine solution should then be applied upon, and for a half inch or more around, the location of the exposed capillaries. This procedure should be repeated several times at intervals of a few moments and alternating with the adrenalin solution. When no more hemorrhage is likely to occur and the cocaine anesthesia is evident, the parts should be gently dried with medium sized cotton swabs before the trichloroacetic acid is applied. The acid solution is applied from the end of the probe containing a small pledget of cotton wound tightly so as to contain no superfluous acid solution. The other end of the probe should have wound around it a more generous amount of cotton which is used to wipe the surface as dry as possible before reversing the ends of the probe to apply the acid remedy. After the parts have been prepared and the application of the acid solution has begun the operator's success will depend much upon his knowledge that the white coagulated mucus covering the surface is not sufficient to dehydrate the underlying offending capillaries. At the point where the hemorrhage took place a noticeable dark spot may be observed through the white coagulated mucus. Several applications of the acid must be made at this point accompanied by a little pressure to make sure that the capillaries are dehydrated sufficiently deep to remain closed. In about six days the dehydrated superficial capillaries along with the coagulated mucus and surface epithelial cells will loosen and be blown out. In a few weeks the surface will appear normal and no evidence of the past treatment will be apparent.

Occasionally a physician is called upon to treat an epistaxis that has existed for a considerable duration of time and about which there may be considerable anxiety. If this patient is at his own residence the physician should have with him an extension cord, although a kerosene lamp will do if the residence is not wired for electric lights. The operator prefers to have the patient in the upright position but if he is lying on his side the bleeding nostril should be farthest from the pillow. When the physician's equipment is in order about him the blood clots are removed with a towel or cotton. The inside of the bleeding nostril is then wiped out with the cotton on the probe until the oozing capillaries are seen. Then the other end of the probe containing cotton saturated with the adrenalin solution is quickly pressed against the bleeding point. This process is continued until the bleeding has entirely ceased when the cocaine solution may be added and followed in a few moments with the



trichloroacetic acid application as described above. To relieve epistaxis effectively and permanently with the least possible disturbance to the underlying tissues and with little discomfort to the patient, this remedy and the method of handling it seems to be ideal.

### ENCEPHALOGRAPHY IN CHILDREN

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Every physician and especially the pediatrician is frequently asked to state the prognosis in cases of epilepsy, mental retardation, convulsions and cerebral birth injuries. Routine study of such cases should include a detailed history, complete physical examination, urinalysis, blood count, blood and cerebrospinal fluid Wassermann tests, lumbar puncture and skull plates. The results of these investigations are often of negative value and the physician is unable to offer the definite prognosis which is of paramount interest to the parents. In such cases the additional procedure of an encephalogram may give positive evidence of an organic brain lesion and in the more exceptional case indicate a lesion which may be benefited by surgical treatment. It is felt that the majority of parents prefer definite knowledge concerning the condition of their children to the false hopes raised by incomplete examinations.

Before encephalography is performed the patient is given a complete neurologic examination including a lumbar puncture. Signs of increased intracranial pressure or of a brain tumor are considered absolute contraindications to encephalography. Presumptive evidence is furnished by

symptoms of frequent headaches, projectile vomiting, blurred vision, localized convulsions and the finding of increased spinal fluid pressure, choked discs, Macewen's cracked pot sound, bulging anterior fontanel and hydrocephalus. If there are no suggestive symptoms or physical findings of a brain tumor the patient is prepared for encephalography by sedatives. Repeated doses of phenobarbital or anesthesia with avertin given rectally, 80 to 100 milligrams of avertin per kilogram of body weight, have been recommended.

The technic of encephalography as performed in this clinic is a relatively simple procedure. Following the preparation with sedatives the child is held in an upright position and a spinal needle is then inserted between the fourth and fifth lumbar vertebrae into the spinal canal. Approximately ten cubic centimeters of spinal fluid are allowed to drain from the canal before five cubic centimeters of air are injected into the canal by means of a sterile syringe. The withdrawal of five cubic centimeters of spinal fluid with replacement by five cubic centimeters of air is repeated alternately until the spinal fluid escapes from the needle in slow drops. During this procedure of air injection the head may be rotated gently from side to side to insure equal distribution of the air in the ventricles and subarachnoid spaces. The volume of air injected will vary from twenty to two hundred cubic centimeters and no definite amount of air necessary for a successful encephalogram can be set arbitrarily. Roentgenograms are taken within one hour after the air injection and lateral, anterior-posterior, posterior-anterior views are obtained.

Piercy<sup>1</sup> recommends a special apparatus for the simultaneous displacement of spinal fluid and injection of air for encephalography. By this closed

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Fig. 1. R. S. Both the lateral and third ventricles are filled with air. There is a marked increase in air over the right frontal and posterior parietal areas. Impression: porencephalia.

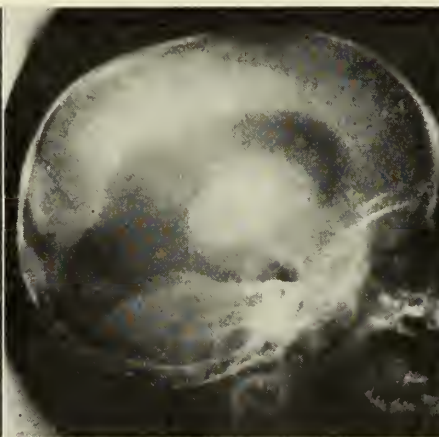


Fig. 2. A. S. Lateral and anteroposterior encephalograms showing dilatation of the lateral and third ventricles, but no displacement or filling defects. There is no subarachnoid air present. Impression: hydrocephalus.





Fig. 3. M. G. Lateral, anteroposterior and posteroanterior encephalograms showing dilatation of the lateral and third ventricles. The left lateral ventricle is larger than the right and flares out in its posterior portion to include the left parietal-occipital region. Impression: porencephalia, posttraumatic.

system method the intracranial pressure is maintained fairly constant throughout the entire procedure. Liberson<sup>2</sup> has performed 210 encephalographies with a closed system method with no untoward results and with less violent postinjection reactions.

Reactions to encephalography may occur either immediately or within a latent period of twenty-four to seventy-two hours. The symptoms of headache, dizziness, nausea, vomiting, perspiration and slow pulse during the procedure are commonly encountered and are not to be feared. However, with any evidence of circulatory embarrassment the air injection should be stopped. Latent reactions include headache, fever, leukocytosis and meningismus with a moderate lymphocytosis in the spinal fluid. These reactions may be alarming but are seldom dangerous to the life of the patient. Crothers<sup>3</sup> reports one fatal case in a series of 200 encephalographies. However, sudden death from lumbar puncture in cases of brain tumor with increased intracranial tension, whether the tumor lies in the cerebellar fossa or elsewhere, is not uncommon.

It is the policy of the Department of Pediatrics of the University Hospitals to perform an encephalography on all patients if there is any question of an organic brain lesion that is not suggestive of a brain tumor. During the period from July, 1935, to May, 1936, inclusive, in a series of thirty-seven encephalographies, pathologic findings have been demonstrated in seventeen, or in 49 per cent of the patients. Crothers<sup>3</sup> found positive evidence of a pathologic lesion in 50 per cent of two hundred successive encephalographies. The following illustrative case summaries are cited.

R. S., a ten months' old infant was brought to the clinic because of retarded development and

periodic fever. There was a history of birth injury with the onset of convulsive seizures at five months of age. The routine examination revealed a fairly well nourished white male of ten months who was unable to hold his head up or to sit unsupported. There were no other positive physical findings and the skull plates did not show any abnormalities. However, the encephalogram gave evidence of a marked degree of porencephalia.

A. S., a fifteen months' old infant developed blindness subsequent to meningococcic meningitis six months earlier. The child apparently could not distinguish light or darkness, yet examination of the eyes, including the fundus, revealed no abnormalities. The skull plates were normal but the ventricles were dilated and subarachnoid air was absent on the encephalogram. It is felt that the blindness was caused by pressure damage of the occipital lobes.

M. G., a nine year old girl had developed frequent convulsive seizures during the past five months. There was a history of a difficult birth but the child developed normally without any signs of central nervous system involvement until the present illness. The physical findings were negative except for a right homonymous hemianopsia. The encephalogram showed a dilated third ventricle and left lateral ventricle with the posterior horn connecting with the parietal-occipital region. A large cystic area on the left side of the brain was aspirated and excised following which the patient made a slow but uneventful recovery.

#### SUMMARY

1. Encephalography is a procedure recommended for all patients with a history or symptoms suggestive of an organic brain lesion other than a brain tumor.



2. In a series of thirty-seven encephalographies, pathologic findings were demonstrated in seventeen patients; an incidence of 47 per cent.

3. Immediate and latent reactions to encephalography have been encountered but all the reactions were temporary and not associated with any permanent effects.

4. In one patient the pathologic findings demonstrated by the encephalogram furnished the basis for surgical procedures which were followed by beneficial effects.

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### LYMPHOGRANULOMA INGUINALE

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Although described in European literature in the early nineteenth century, only during the past decade has the attention of many American workers been directed toward lymphogranuloma inguinale. Even more recently has the general practitioner become aware of its existence. I have under my care one such case and know of one other case in Sioux City. Neither of these cases was correctly diagnosed until after many errors had been made.

The case I saw, is I believe, typical in most respects of lymphogranuloma inguinale. The patient, a female, forty years of age, was seen at the clinic complaining of severe constipation, fecal discharge from the vagina and general debility. She stated that she had seen numerous physicians who varyingly diagnosed her condition as rectal malignancy, luetic proctitis and gonorrheal proctitis. She had a rectal biopsy in 1932 at which time Hodgkin's disease was suspected but not established. After careful questioning, the patient recalled that she had a small ulcer on the left labia in 1918 which soon disappeared and was not given a second thought. Soon thereafter she noted a gradual enlargement in the inguinal region which caused some discomfort but not of such severity as to require medical attention. In 1929 there appeared a creamy discharge from the rectum which a little later became serosanguineous and was followed by a similar discharge from the vagina. Not until 1930 did constipation become pronounced and since that time has increased gradually but constantly. On examination the entire pelvic floor was firm and indurated. A thick fecal discharge was exuding from numerous rectovaginal fistulae. Rectal examination revealed a

stenosis of such severity that even the tip of the small finger could not be inserted. The Frei test was positive.

The reason that this case, and others like it, are not more frequently recognized is that the existence of this condition is not widely known. As the first step in the control of any such disease depends entirely upon the recognition of its more common features by the general practitioner, a brief resumé of its clinical picture is here attempted. Lymphogranuloma inguinale is a specific venereal disease caused by a filtrable virus. Although commonly believed to be found only in the South, case reports from other parts of the country are becoming more frequent in the literature. The infection is characterized by a subacute or chronic inflammation of the inguinal or pelvic lymph glands, usually resulting in suppuration, abscess formation and chronic fistulation, with a tendency toward healing by retractile scarring and fibrosis.

The onset of the disease is insidious. The primary lesion is frequently overlooked because of its painless transient duration and small size, often being no larger than a pin-head. The local sore is usually confined to the genitalia but is rarely seen on extragenital sites. It may manifest itself in one of four ways; ulcerative, nodular, papular, or lymphogranulomatous urethritis. It generally appears in three to twenty-one days after inoculation, disappears in five to ten days, and gives rise to no subjective symptoms during its existence. The secondary stage usually appears in ten to thirty days after exposure and is characterized by a chronic inflammatory involvement of the lymph glands in the fields draining the primary lesion. As the lymph drainage from the genitalia differs in the male and female, the clinical pictures likewise are altered. In the male the drainage is almost entirely directed into the inguinal lymph glands and then into the deep ileac nodes. In the female, these glands drain only from the vulva whereas the vagina and cervix feed into the perirectal and retrovaginal lymph glands.

Several days prior to the lymphadenitis, the patient suffers from variable constitutional complaints, such as headache, anorexia, backache, and generalized malaise. Soon thereafter there is an inflammatory involvement of the lymph nodes. The nodes become hard, swollen and tender. The tenderness becomes more pronounced as the swelling increases. The disease progresses slowly, extending from gland to gland, finally producing a periadenitis. As this develops, the surrounding tissues become fixed and attached. The blood picture at this time shows a moderate leukocytosis of ten to twelve thousand with a definite increase

in mononucleocytes and eosinophiles. Eventually softening of the glandular masses occurs and this is followed by the appearance of one or more fistulae which become inter-communicable, the interlacing channels giving the affected area a honeycombed appearance. Thick creamy pus usually exudes for some time and this occasionally becomes serosanguineous. As the lymph nodes are involved, lymphatic thrombosis occurs causing an elephantiasis of the drained areas—genito-anorectal region. The process is essentially chronic with remittances of severe symptoms the rule. The third stage is characterized by lesions in non-lymphatic tissues which are directly associated with the destruction of the lymphatic glands and vessels. The duration of this period is variable. Healing when it does occur, takes place by fibrosis and scar retractions.

The picture seen clinically, depending upon the stage of its advancement, may therefore be one of a number. As stated before, the primary lesion is frequently overlooked. Later, the complaint may be a tender regional gland enlargement, or still later, an elephantiasis of the genitals. More frequently the findings are those of a rectovaginal fistula, a fecal fistula, ischio or perirectal abscess and proctitis with a slowly advancing rectal stricture and stenosis. The patients rarely live beyond the age of fifty. The continued suppuration undermines the health and frequently leads to nephritis, amyloidosis, or severe anemia. Also, the marked constipation produces a devitalizing toxemia of the associated chronic intestinal obstruction. The application of the Frei test in suspected cases will materially aid in the recognition of this condition. This test discovered in 1925 by Frei is a specific diagnostic intradermal procedure which becomes positive in ten to twenty-one days following the appearance of the adenitis.

In the differential diagnoses, the following conditions should be considered.

1. Chancroidal bubo. The process tends to be more acute, more painful, suppurates earlier and produces as a rule but one large fistula. Ducrey's bacilli are found in scrapings from the lesion.

2. Luetic adenitis. The glands are hard, discrete and have no tendency to suppurate. A dark field examination and blood Wassermann test further aids the establishment of the causative etiology.

3. Tuberculosis.

4. Hodgkin's disease.

5. Malignant conditions.

6. Simple pyogenic infections.

7. Fungous infections.

Nos. 3, 4, 5, 6 and 7 can be ruled out by careful bacteriologic and pathologic studies.

8. Granuloma inguinale can be differentiated by the presence of Donovan bodies and also by the fact that the lymph nodes are not involved. A good rule to follow is to do a Frei test on all cases of rectal strictures and of inguinal adenopathy, unless they are obviously caused by some other agent.

The treatment, as in other little understood conditions, has been diverse and unsatisfactory. Potassium iodide internally, emetin intramuscularly, as well as the local application of salts of iron, copper, arsenic, and mercury, have been tried. Intravenous injections of compound solutions of iodine, or intramuscular injections of antimony and potassium tartrate (Faudin) have been tried but with little encouragement. X-ray and radium therapy have likewise failed. Removal of the involved tissues has relieved some patients but does not give uniformly satisfactory results. At present only palliative and supportive treatment can be given. In cases of anorectal stenosis, attempts at dilatation have proved futile. Here, a left inguinal colostomy is the best solution. This relieves the obstruction, immediately improves the general condition of the patient, and aids the local lesion as the secondary colonic infection is withdrawn. Efforts to build up the patient's immunity to the virus by repeated injections of specific antigen are still inconclusive. Attempts to develop an attenuated form of the virus are being made but have not advanced beyond the experimental stage. This approach, however, clearly offers the most hopeful possibilities yet to be suggested in regard to prophylaxis or even treatment.

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#### THE FINLEY HOSPITAL CLINICO- PATHOLOGIC CONFERENCES

#### CIRRHOSIS OF THE LIVER WITH JAUNDICE

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The differential diagnosis of jaundice in adults presents an interesting clinical problem because there are so many possible causes. It is well recognized that persistent, painless jaundice in an adult is frequently due to primary or metastatic malignancy. Indeed, this is so well known that there is a tendency to be satisfied with a diagnosis of malignancy where actually some one of several other possible factors is the cause of the obstruction to the passage of bile. The case to be presented is of interest because it illustrates this very fact.



## CASE REPORT

*Chief complaint:* The patient, a white woman, thirty-seven years of age, was admitted to the Finley Hospital, October 9, 1934, with a complaint of "nausea, vomiting, jaundice and weakness."

*Family history:* Her husband was blind and she had one daughter with congenital glaucoma.

*Past history:* The patient had been blind since childhood with glaucoma. She also had a mild, inflammatory rheumatism early in life and one year before her admission there was a recurrence lasting a few weeks. She had had numerous attacks of abdominal pain, many of which were accompanied by nausea and vomiting. Her last attack was six months before admission and after two weeks of nausea, vomiting and localized pain in the right lower abdominal quadrant, she consulted a surgeon who made a diagnosis of chronic, recurrent appendicitis and removed the appendix. Following the operation she coughed a great deal and raised thick, greenish, mucoid material. Two weeks later numerous râles were heard in both lungs and signs of fluid developed in the right chest. Three weeks after the operation the right chest was aspirated and 320 cubic centimeters of straw-colored fluid were withdrawn. The fluid appeared to be a transudate. A guinea pig was inoculated but gave no evidence of tuberculosis after six weeks. The patient continued to run a septic temperature varying between normal and 102 degrees. Two other aspirations were done during a period of three weeks and 700 cubic centimeters of sterile fluid were removed. X-ray examinations showed a thickened pleura but no evidence of active tuberculosis. The patient was discharged from the hospital after eight weeks with a diagnosis of cured, chronic, recurrent appendicitis and pulmonary tuberculosis which was never proved.

*Present illness:* After the patient returned home she had a persistent cough and another mild attack of inflammatory rheumatism. Two months later she complained of loss of appetite, a bad taste in her mouth and a little nausea. When seen at this time she was distinctly jaundiced. Because of her blindness and that of the other members of her family, it was not known when the jaundice developed. An alkali by mouth and daily saline catharsis was given without relief. Soon after she left town and had no medical advice until her return about three week before entering the hospital. The jaundice, which had been a light yellow, was now very dark. She was nauseated, weak and very ill. The cough persisted and she raised what looked like thick pus. The

sputum was negative for tubercle bacilli. There was slight tenderness in the gallbladder region. The temperature continued to remain normal. In spite of her illness she did her housework even though she was told to remain in bed. One week before coming to the hospital her condition became distinctly worse. She was advised to enter the hospital because the jaundice increased and headaches and nausea became more severe.

*Physical examination:* On admission, the temperature was 98.2 degrees, the pulse 100, and the respirations 20 per minute. The patient was a well



Fig. 1. Photograph of the liver.

developed and nourished white woman with a deep olive green jaundice. She was seriously ill and semicomatose. There was no cervical rigidity. The lymphatic glands were not enlarged and no glands were palpable at the base of the neck. The tongue had a dirty coating. The lungs posteriorly showed diminished resonance at the right base but without the flatness one would expect with fluid. Breath sounds were absent in the back. The heart was not enlarged to percussion. The sounds were rough and had a peculiar "scratchy" sound but there were no typical murmurs. The abdomen was somewhat distended and a small fluid wave was present. The liver was just palpable under the costal border. The gallbladder could not be felt and was not tender. The spleen was not palpable and was not enlarged to percussion. The patient was unable to cooperate by breathing to force the spleen down. There was a large, ventral hernia extending the entire length of the appendectomy scar, apparently the

result of her persistent cough following the operation. The white blood count was 9,600.

With the progressive, afebrile jaundice of two months' duration, in a patient thirty-seven years of age, not accompanied by pain, and with considerable loss of weight, the most likely diagnosis was cancer of the head of the pancreas. As no palpable masses nor any other evidences of a tumor could be found, an x-ray examination was ordered in an effort to find evidence of metastases in the thorax. The report showed marked thickening of the pleura over the right lung with an elevation of the right diaphragm and some enlargement of the heart. No evidence of pulmonary metastases was found. The patient died after two days in the hospital with marked pulmonary edema.

*Clinical diagnosis:* Probable carcinoma of the head of the pancreas with jaundice.

*Autopsy abstract:* The body was that of a well developed and nourished white woman with a moderately intense jaundice. There was a hernia of the appendectomy scar. The abdomen contained 2,000 cubic centimeters of deep amber, clear fluid. The left chest contained 150 cubic centimeters and the pericardial sac, eighty cubic

centimeters of similar fluid. The heart was dilated and weighed 425 grams. On dissection the foramen ovale was widely open and the mitral cusps were thickened and retracted. Over their upper surfaces there were minute vegetations. The mitral endocarditis explained the several attacks of inflammatory rheumatism and probably the septic temperature which followed the appendectomy. It is likely that the cough was due to stasis of the lungs. The latter showed acute congestion, edema and an occasional minute hemorrhage. There were a few fibrous adhesions over the pleura of the left lung, but the right pleural cavity was almost obliterated by edematous adhesions. No evidence of tuberculosis was found in either lung. The most important finding was in the liver. It was attached to the diaphragm by edematous adhesions which were easily broken up. It was shrunken in size and externally, was coarsely nodular, especially in the lower half and over the dome (Fig. 1.) On section it cut with markedly increased resistance. The cut sur-

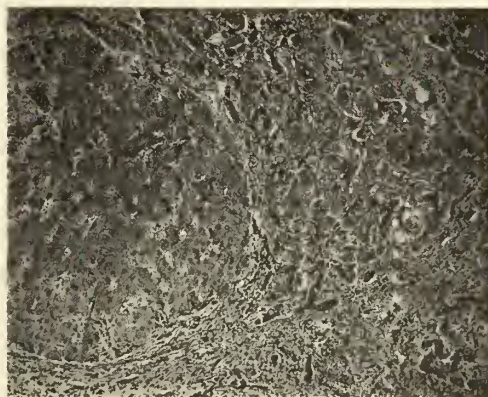


Fig. 3. Microscopic section of the liver.

face showed numerous, small, discrete nodules of liver separated by coarse bands of connective tissue (Fig. 2). The change was most marked toward the periphery of the organ and the central portion was only moderately involved. The cut surface was greenish brown due to the staining with bile. The gallbladder was distended with viscid bile but the bile ducts were patent. On microscopic examination the liver showed marked destruction of the normal architecture due to a great increase of granulation and fibrous tissues and to an infiltration with enormous numbers of round cells and a few polymorphonuclear leukocytes (Fig. 3). In many areas there was marked regeneration of the liver cells and of the epithelium of the bile ducts. There was also a moderate thickening of the capsule of the spleen.

*Anatomic diagnosis—Primary:* 1. Chronic and subacute mitral endocarditis; patent foramen ovale; cardiac dilatation and hypertrophy; acute congestion and edema of each lung; pleural effusion. 2. Chronic and subacute diffuse hepatitis with cirrhosis; jaundice and ascites. *Subsidiary:* Operative scar (appendectomy) with hernia; bi-



Fig. 2. Cross section of the liver.

centimeters of similar fluid. The heart was dilated and weighed 425 grams. On dissection the foramen ovale was widely open and the mitral cusps were thickened and retracted. Over their upper surfaces there were minute vegetations. The mitral endocarditis explained the several at-



lateral fibrous pleurisy; chronic perisplenitis and perihepatitis.

#### COMMENT

A review of this case indicates that there was a diffuse degenerative process involving the liver parenchyma followed by regeneration and an attempt at repair. Undoubtedly some toxic agent affected the liver cells but its nature is in doubt. There was no history which would implicate alcohol or other drugs that are known to be toxic for the liver cells. As the patient had recurrent attacks of inflammatory rheumatism with endocarditis, it is quite possible that the liver damage was due to bacterial toxins. The case may be the end result of an unrecognized subacute, yellow atrophy and is an example of one stage of atrophic cirrhosis of the liver (Laennec's or portal cirrhosis, "hob-nail" liver). While possible, jaundice is unusual in portal cirrhosis and as there was no obstruction to the extrahepatic bile ducts it was probably due to constriction of the intrahepatic ducts. The ascites was primarily the result of interference with the portal circulation and secondarily to the failing heart.

The differential diagnosis was difficult because of the vagueness of the symptoms, the absence of physical findings and the jaundice. Jaundice is very rare in the common type of cirrhosis of the liver though usual in biliary cirrhosis (Hanot's disease). In the latter the liver and spleen are enlarged. At no time could evidence of enlargement of either organ be demonstrated in this case. Furthermore, ascites is rare in biliary cirrhosis. In the absence of definite findings, malignancy originating in some organ where there would be few symptoms seemed the most probable diagnosis. The organ that answers this description most frequently is the pancreas. Possibly the error in diagnosis might have been avoided if the patient had been under constant observation.

### CLINICAL NOTES FROM THE COLLEGE OF MEDICINE

#### PULMONARY EMBOLISM

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Perhaps the most discouraging and disheartening incident following present day surgical operations is the occurrence of a pulmonary embolus, commonly appearing in a young patient who is well on the road to recovery. In no other mode of death is exitus quite so dramatic as in massive

pulmonary embolic accident. Because it is so sudden and so dramatic, its picture is commonplace and the surgeon is constantly on the watch for it to occur. This very alertness on the part of the surgeon may lead to erroneous diagnoses in sudden death from other causes.

Thrombosis followed by embolism may occur in individuals of any age, but is not common in the first and second decades. The incidence rises rapidly in the third decade of life and reaches a maximum about the age of fifty. Embolism occurring after this age is frequently associated with pre-existing cardiovascular disease, which itself is a decided predisposing factor. Recently it has been generally believed that the incidence of thrombosis and embolism has risen since the World War. It is true that the incidence of fatal pulmonary embolism has been on the increase in the surgical clinics of central Europe, but there has been no such increased incidence in North America during the same period of time, and actually Rosenthal has reported a slight decrease.

The pathogenesis and the pathologic principles involved in the formation of a thrombus are simple. Experimentally, venous stasis and injury to the endothelial lining of the vessel will not alone bring about thrombosis. Given these factors, however, existing concurrently with certain alterations in the chemistry of the blood, and the prerequisites are fulfilled. Although there has been debate about the chemical changes in the blood, it has been established definitely that there is an increase in the blood protein from absorption at the site of trauma. There is also an increase in the calcium, carbon dioxide, fibrinogen and globulin content of the blood. All of these elements are concerned with the physiologic coagulation of blood and it is readily seen that an undue increase in their quantity may cause thrombosis. A collection of blood platelets occurs at the denuded area in the vessel and a gray translucent nodule known as the head forms. Platelets are deposited on this nodule in lines transverse to the long axis of the vessel. The formed elements of the blood stream adhere to the lines and together with fibrin, which soon makes its appearance, form meshes in which are imprisoned many red blood cells. When the clot has become large enough to obstruct the lumen of the vessel, blood collects both distally and proximally to the head. Stasis and stagnation occur to the point of inflow of the next vascular branch, and coagulation follows. Approximately 50 per cent of all emboli have their origin from thrombosis in the femoral vein. Why is this vein so frequently the site of thrombophlebitis? Besides the element of venous stasis and the changes in blood chemistry, there are some important anatomic relation-

ships which logically seem to play a minor rôle in the picture. Both femoral veins pass under Poupart's ligament and the left common iliac vein is crossed by the right common iliac artery. Also in many hospitals it is the custom following laparotomy to use tight abdominal binders which may compress the femoral vessels in the inguinal region. Fowler's position, by means of the Gatch breakable bed, clearly adds to the venous stasis in the pelvic channels. Following most abdominal surgical operations there is usually hypotension, and depressed respiratory activity decreases the "sucking action" of the thorax in returning blood to the right auricle.

The most frequently occurring symptoms of the twenty-three cases reviewed in the records of this institution were pallor and cyanosis, rapid imperceptible pulse, evidence of shock and loss of consciousness. Stress should be placed on engorgement of the vessels of the neck, as this is an important symptom and serves to differentiate the condition. The symptomatology depends on the amount of obstruction produced by the embolus in the individual patient. With complete obstruction to the pulmonary artery death is sudden but not immediate. The lungs are emptied of any blood which might remain there and cerebral anemia follows. Respiratory paralysis is reflected by a few terminal gasps before cessation of respiration. Dilatation of the right side of the heart occurs due to back pressure from the lungs. With incomplete obstruction the circulation is carried on under a mechanical disadvantage. Death is either respiratory from prolonged anoxemia of the medullary centers, or cardiac due to over-work on the part of the right side of the heart. The blood becomes piled up in the pulmonary circuit, resulting in an anemia on the systemic side. In this manner the general picture of shock and internal hemorrhage is classically simulated.

Coronary occlusion presents the most confusing condition included in the differential diagnosis. The important differentiating features are the history, and the somewhat classical lines of radiation characteristic of coronary pain. Pulmonary occlusion pain is more oppressive and is described as intrathoracic suffocation. The resulting cyanosis is extreme and its degree is not approached in coronary occlusion where the color is more ashen. The symptoms of shock are common to both, but they appear more readily and more rapidly in pulmonary embolus. Finally, it is engorgement of the veins of the neck which is perhaps the most dependable sign of pulmonary embolus. Of lesser importance in the differential diagnosis are postoperative pulmonary massive collapse and pneu-

mothorax. The symptoms of these conditions may closely simulate those of pulmonary embolus, but their characteristic physical signs and the x-ray findings usually serve well to elucidate them.

The treatment for pulmonary embolism is primarily prophylactic. After the accident has occurred treatment may be either operative or conservative. Opening of the pulmonary artery for the purpose of removing a recent embolus was proposed by Trendelenberg in 1908, but it was not until 1924 that the operation was performed successfully for the first time by the German, Kirschner of Königsburg. Since then thirty cases of attempted pulmonary arteriotomy have appeared in the literature. Thirteen of the thirty have been immediately successful, but to the present date not a single successful case has been reported from North America. Obviously, speed, a highly trained personnel and excellent organization, factors which obtain only in medical centers, are essential for the successful performance of the operation.

Conservative treatment, of course, is of little avail as the course of the patient is determined by the amount of pulmonary obstruction and shock after the accident has occurred. It is generally felt that if the patient does not die from shock following the accident, he will probably recover. Therefore, it is of great importance that every means of prophylaxis at the surgeon's command be employed in order to put the patient in the best possible condition for operation. Anemias should be corrected, all cardiac patients should be well compensated, and every attempt should be made to reduce obesity in patients chosen for elective surgery. Simple tricks of operative technic such as removing all dilated veins and thrombi, especially in a twisted ovarian cyst, serve to reduce the incidence of this accident. Efforts should be made to control postoperative retching and vomiting. Motion of the arms and legs and frequent change of position tend to stimulate the circulation and prevent stasis. Walters suggests that two grains of thyroid extract be given three times a day, as soon postoperatively as it can be tolerated by the patient, in order to combat depressed metabolism and the slowing of the circulation commonly observed after major abdominal procedures. After thrombophlebitis has occurred, Brown and Bancroft have given five to ten cubic centimeters of 10 per cent sodium thiosulphate, believing that in a low grade phlebitis without marked febrile reaction considerable improvement results. Experimentally, sodium thiosulphate has been shown to be non-toxic and to decrease the prothrombin in the blood stream. Termier, in 1922, revised the leech treatment for phlebitis. The beneficial effect is supposedly due to hirudin, which is secreted in



the pharynx and esophagus of the encyclostome and inhibits coagulation of mammalian blood.

Between July 1, 1929, and July 1, 1935, pulmonary embolus occurred at the University Hospitals in thirty-four patients, twenty-three of whom were surgical cases. One of these emboli did not occur postoperatively, but followed a thrombophlebitis in a patient being prepared for operation. Seventeen, or 73 per cent, of the embolic accidents took place in male, and six, or 27 per cent, in female patients. None of the emboli occurred in patients under thirty years of age. Emboli occurred in five patients in the fourth decade, two in the fifth, five in the sixth, three in the seventh, seven in the eighth, and one in the ninth decades of life. Patients in the last three decades who suffered embolic accident had undergone surgical attack upon the genito-urinary system and were suffering from a previous cardiovascular disease. These patients died on the first and second postoperative days and in each instance in which the patient was submitted to post-mortem examination, the source of the embolus was found in the heart. Embolic accident occurred with considerable regularity, excepting the instances mentioned, from and including the fifth to the twelfth postoperative day. Its day-by-day incidence within this period did not seem to follow any significant pattern. Emboli also occurred in two patients, one each on the eighteenth and twentieth postoperative days. The annual incidence also did not vary significantly with the years, 1929 to 1935, except that no embolic accident happened on the surgical services in 1931. The seasonal incidence indicates a fairly high percentage of embolic accidents in March, June and July, but an extremely low percentage in May. Little significance may be attached to this finding because of the small number of cases in our series. However, one might hazard a guess that the present data indicate a slightly greater chance of embolic accident occurring in the spring and early summer.

The type of surgical operation which preceded formation of an embolus varied widely and, in the present series, there did not seem to be any one type of operation, or of anatomic location more predisposing than another.

Twenty-one of the twenty-three patients died, a mortality rate of 91.1 per cent. The two patients who recovered from the accident developed multiple small lung emboli. One of these patients, after recovering from the immediate effects of the initial accident, subsequently developed gangrene of the lung and died.

Pulmonary embolectomy, the only operation of the kind ever attempted at the University Hospitals, was performed in one instance but the

patient died. This was a fifty year old male whose left hip was explored because he was thought to have a chondrosarcoma of the left femur, but a chronic granulomatous lesion was found. Post-operatively, he ran a septic course and developed an embolus on the tenth day. Immediate exploration of the chest with minimal surgical preparation was performed. The pulmonary artery was opened through an incision in the pericardial sac, the embolus removed and the artery closed after having been open but forty seconds. The patient's heart beat weakly a few times and then stopped, and all attempts to start it, including massage and intracardiac adrenalin, were of no avail.

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#### MAYO FOUNDATION PROGRAMS

A special program of lectures and demonstrations in medicine and surgery will be held under the direction of The Mayo Foundation, Rochester, Minnesota, from November 9 to 13, inclusive. Mornings will be devoted to surgical and medical clinics. In the afternoons and evenings symposiums will be conducted on neurology, gynecology, diseases of the ear, nose and throat, laboratory procedures, emergency treatment, pediatrics, and renal diseases. In addition a clinicopathologic conference will be held. While this program is arranged primarily for the Fellows of the Foundation, visiting physicians are invited to attend.

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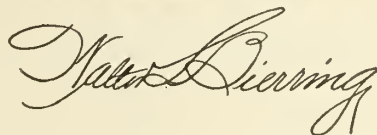
#### POSITIONS FOR DOCTORS WITH THE CIVILIAN CONSERVATION CORPS ACTIVITY

At the present time there are a number of positions available with the Civilian Conservation Corps activity in the Seventh Corps Area for young men of the medical profession. Doctors having appointments in the Medical Corps Reserve of the Army and Navy may be ordered to duty under their commissions. Those who are not members of the Reserve Corps may be given appointments or they can be employed on a contract basis.

These positions offer the young physician an opportunity to get started in his profession and after a short time to begin his own private practice. Such training will give the medical profession a better insight on the manner of evacuating and caring for the sick and injured in a national emergency.

Those interested in obtaining positions as medical officers with the Civilian Conservation Corps may communicate with the C. C. C. Surgeon, Headquarters Seventh Corps Area, Federal Building, Omaha, Nebraska, or to the District Surgeon, Headquarters Iowa District, Fort Des Moines, Iowa.

# STATE DEPARTMENT OF HEALTH



## PUBLIC HEALTH AND THE GENERAL PRACTITIONER

The extension of public health service made possible through the provisions of the Social Security Act has again brought into the foreground the relation of the public health officer and the medical practitioner. Concern is frequently expressed in medical society discussions that the function and duties of public health officials will be extended to include curative medicine.

At the Conference of State and Provincial Health Officers of North America held in Washington, D. C., in June, 1935, a resolution was adopted that the operation of Titles V and VI of the Social Security Act which were concerned with public health services be carried out in cooperation with the medical and dental professions and in no way encroach upon the field of curative medicine. One of the special provisions of the Act is the establishment of training centers for public health personnel, ensuring for the future that only physicians properly qualified in public health work will be appointed as health officers. There can be no conflict between the health officer and the practitioner; the duties of the former are concerned with maintaining and protecting the community health, while the health of the individual will always be the responsibility of the practicing physician.

In being able to bring the benefits of modern medical knowledge in the control of preventable diseases particularly to the rural communities, it is hoped inevitably to promote a public sentiment and higher regard for the properly qualified physician in his efforts to maintain the health of the individual. To the medical practitioner it will mean an enlargement of his field of service, and tend to augment the reward for his labors rather than to detract therefrom.

W. L. B.

## CONVALESCENT POLIOMYELITIS SERUM

The State Department of Health has a limited amount of convalescent poliomyelitis serum, available for distribution to physicians in any part of the state who may recognize and report a case of

preparalytic poliomyelitis. On Friday, September 11, at Waterloo, and a week later at Sioux City, blood was obtained from persons who in past years have recovered from an attack of poliomyelitis. At Waterloo, thirteen donors contributed a half pint of blood; at Sioux City a similar amount, and in a few instances a pint of blood was taken from twenty-eight eligible volunteers. Donors were paid at the rate of five dollars for eight ounces of blood. All of those volunteering for this service showed some form of residual paralysis.

This work, sponsored by the State Department of Health, in cooperation with county medical societies and attending physicians, met with gratifying response. At Waterloo, donors called at the office of the Visiting Nursing Association. Two former patients drove forty and fifty miles respectively (from Garwin and a farm near Tama) to do their bit. Additional remuneration was allowed to cover mileage expense. The work in Sioux City was carried out in the offices of the Woodbury County Health Unit at the City Hall, under the direction of W. S. Petty, M.D., and with the assistance of A. H. Lazere, M.D., and visiting and public health nurses. One donor drove from South Dakota, one from northeastern Nebraska, and a dozen more from various towns and counties in northwestern Iowa.

There is an undue prevalence of poliomyelitis in Iowa at this time. To date (September 29), twenty-two cases of the disease have been reported, whereas the expected number based on the average for the past nine years, was sixteen cases. Counties reporting cases in September were: Adair, one; Clinton, three; Dallas, one; Decatur, one; Dubuque, one; Jackson, one; Kossuth, two; Pocahontas, one; Polk, seven; Scott, three; and Tama, one.

Convalescent poliomyelitis serum has probable value when given in adequate amount, during the preparalytic stage of the disease. Physicians desiring to use serum may obtain the same by telephoning the State Department of Health in Des Moines as follows: 8:00 A. M. to 5:00 P. M., telephone 4-9111, Extension 137; after 5:00 P. M., telephone 7-1417.



### TRACHOMA

Is trachoma endemic in Iowa and how prevalent is the condition in this area?

#### *Trachoma Endemic Here*

That trachoma is endemic in this state is indicated by the fact that ophthalmologists long in practice in Iowa, treated not a few cases of this eye disease in decades past. Furthermore, records of cases reported to the State Department of Health indicate that some of the afflicted persons have always resided within the boundaries of the state.

#### *Frequency of Occurrence*

Since very few trachoma cases have been officially reported as such in Iowa, no reliable statement can be made at this time regarding frequency of occurrence of trachoma in children or older age groups of the population. Recently ten cases of trachoma, representing five different families and five widely separated counties in Iowa, were reported to the State Department of Health from the Department of Ophthalmology, College of Medicine, and the University Department of Health at Iowa City. Counties in which the trachoma patients resided prior to admission to the hospital, are Buena Vista, Cedar, Jasper, Polk and Scott. Physicians of the department of ophthalmology at the University are of the opinion that the occurrence or incidence of trachoma in Iowa is on the increase. A special study of trachoma is being undertaken at this time at the University hospitals.

#### *Clinical Note*

One of the patients recently reported as having trachoma, complained of painful eyes about two months before admission to the hospital. Eyes were inflamed, sensitive to light and there was watery discharge. Physical examination revealed ptosis and photophobia, with lacrimation. The upper conjunctivae in particular, showed granules or follicles, marked congestion and some purulent discharge. Although the sclerae were clear, the cornea in both eyes showed second degree pannus. Pupils were equal and normal in outline. Inclusion bodies were found in scrapings from the conjunctiva.

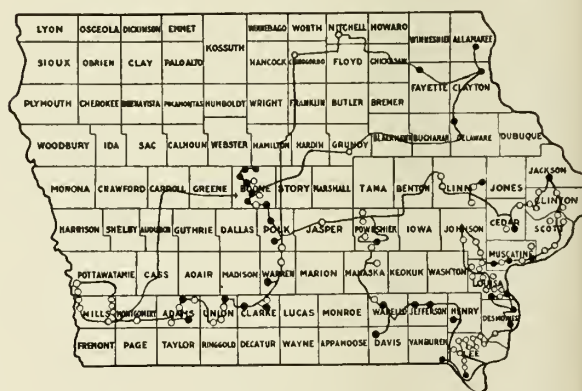
#### *Better Reporting Needed*

Trachoma is one of the list of reportable diseases and is regarded as of infectious and communicable disease nature. It is desirable that reporting of trachoma be more complete, not only as an aid in preventing the spread of infection, but that statistical records of reported cases may represent a more accurate index of actual disease prevalence.

### RESULTS OF TICK SURVEY

In the August number of the Journal, page 482, mention was made of a tick survey which was carried out in Iowa during the latter part of June and first half of July. The study, made possible by funds derived from the Social Security Act, through the United States Public Health Service, was sponsored by the State Department of Health, in collaboration with Carl J. Drake, State Entomologist, Iowa State College, and R. R. Parker, Ph.D., Special Expert, United States Public Health Service, Rocky Mountain Spotted Fever Laboratory at Hamilton, Montana. Ticks were collected by Mr. Dean Eckhoff, graduate student in entomology, in thirty-five counties located in northeastern, eastern, southeastern, central and southwestern sections of the state. The counties concerned include all from which one or more cases of Rocky Mountain spotted fever have been

LOCALITIES INCLUDED IN TICK SURVEY—1936



Black circle—Ticks found. Open circle—No ticks found.

reported since the summer of 1933. At intervals of several days, during the course of the survey, ticks were shipped from Iowa to the spotted fever laboratory in Montana.

A report has been received from Dr. Parker, detailing results of study of the ticks which were received from Iowa. Of a total of approximately 800 ticks shipped to Montana, 359 were alive on arrival. These ticks, representing thirty-one different localities in this state, were identified and tested for evidence of harboring the spotted fever virus or other infection. Dr. Parker's report shows that, without exception, the ticks belonged to the species *Dermacentor variabilis*, or the common dog tick. "The 'drag' ticks," quoting from Dr. Parker's report, "were tested by feeding on a guinea pig for several days; then the [engorged] ticks were removed and injected into one or more other guinea pigs. Where the ticks came from some host animal, [and were already engorged],

(Continued on page 594)

The JOURNAL of the

Iowa State Medical Society

ISSUED MONTHLY

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No. 10

THE INHERITABILITY OF DISEASE

No doubt familial characteristics have been noted throughout the ages. No attempt at a satisfactory explanation of the phenomenon was offered until 1865 when the Austrian doctor and monk, Johann Gregor Mendel, published his thesis entitled "Research upon Hybridization." Unfortunately for the scientific world this research received little notice until about 1900 when parallel studies in biologic research drew attention to Mendel's original observations in plant breeding, particularly those of the pea. Through these and later studies the basic principles of Mendel, first, that of segregation; and second, that of dominance, as inheritable characters became fully established.

Within the past decade the painstaking observations of Dr. Maude Sly of Chicago directed the attention of the medical world to the inheritability of cancer, and the irrefutable evidence which she presented on cancer followed closely if not perfectly the Mendelian law. More recently Dr. E. C. MacDowell of the Carnegie Institution of Washington has announced researches in leukemia, which seemed not only to prove the inheritability of this disease but also to support the viewpoint that inheritance in this case also follows the Mendelian principles. Frequently referred to as a malignancy of the blood, leukemia is shown by these studies to parallel entirely the hybridization pattern of cancer. Neither Dr. Sly nor Dr. MacDowell presumes that inheritance is the only factor involved in the production of these diseases. In those animals obtained by mating tumorous and non-tumorous strains the hybrids exhibit tendencies toward tumor formation exactly as predicted by the Mendelian law. However, these observers recognized conditioning factors in the environment of the animal which may favor or retard the development of the malady. Amply explained by Dr. MacDowell,

"Putting all this together, we find evidence that wild growth does not depend merely upon a change in the cells but also upon the relation of this change to the growth controlling forces of the particular individual. Heredity sets limits; environment decides the exact position within these limits."

While the etiology of cancer and leukemia cannot be said to be established by these researches, their importance in the study of these problems cannot be overestimated. These observations not only establish interesting academic facts but may point the way in the preventive treatment of those individuals whose ancestry predicates susceptibility. With a knowledge of the factor which determines susceptibility, the search for the exciting or determining factor will doubtless be simplified.

COMMERCIAL MEDICAL DIRECTORY

In the last issue of the JOURNAL we directed attention to the new medical directory edited and published by the American Medical Association. We called attention at that time to the listing of physicians indicating their declared specialties. We stated that this listing was necessarily an arbitrary one, since sufficient standards have not been established in many of the specialties to determine with accuracy when a physician possesses sufficient qualifications to justify his declaration as a specialist. Even with these restrictions, the medical directory of the American Medical Association is far superior to other medical directories which have been published, and it is easily the most trustworthy and reliable.

Certainly its superiority over those compiled and published by commercial interests cannot be questioned. However, the fact remains that uninformed physicians often rely on these commercial directories for references where the welfare and even the life of a patient may be at stake. For the most part, these commercial directories cannot justify their claim of public service, inasmuch as the promoters of these commercial schemes possess little or no background for judging a physician's qualifications and, even if they did have this background, they would still be hampered by the commercial aspects of their scheme. The fact is however, that these directory listings are frequently based upon the payment of a fee rather than on professional qualifications. Sometimes this fee is collected in the guise of a subscription to or the payment for a directory, but the contributing physician is not deceived by this subtlety and fully realizes that he is directly and definitely paying for his listing. In most instances, if this fee is not paid, the physician whose



name is suggested is summarily omitted from the publication. It is, therefore, obvious that an unqualified physician may, by proper payment, be listed in these volumes thereby misleading the public and even his own colleagues (in distant parts) concerning his actual preparation.

In some instances these directories are distributed only to those physicians who subscribe or in some other fashion pay for their listing. In other instances a generous free list is maintained by the publisher, particularly of insurance companies or large corporations who may need the services of such physicians for disability compensations or consultation cases. In either event, the publisher of the commercial directory is patently more concerned in paid listings or subscriptions than he is in distribution. Most life insurance companies have found that often the physician "subscribing" to such a directory may have no particular qualification for special work other than his willingness to serve and his desire to collect a fee. Through costly experiences these companies appreciate that a wise selection cannot be made through these commercial lists and for that reason entirely ignore them, employing independent avenues of investigation to determine the acceptability of physicians for these services. Smaller companies whose facilities of investigation are limited, and particularly accident insurance companies, may place greater confidence in such lists, assuming that they represent a true guide to specialism. Obviously, such confidence, if misplaced, may lead to costly experiences and untold suffering.

Recognizing the undesirable character of commercial directories of specialties, particularly in the insurance field, the Arkansas Medical Society passed a resolution condemning the practice of physicians in listing their names in these directories and pointing out the unethical character of this procedure. They carried their resolution to the House of Delegates at the last annual session of the American Medical Association, where, after study by the Judicial Council, the resolution was adopted by that body. In favorably referring this resolution to the House of Delegates, the Judicial Council made this very significant observation. "The Judicial Council is of the opinion that most, if not all, of the directories described in the resolution condemning as unethical the listing of physicians by specialty in directories published by commercial concerns . . . are but subtle ways of avoiding the pronouncement of the principles of medical ethics concerning solicitation of patients under the guise of buying a directory when the real intent is the purchase of the publication of the buyer's name in the directory for the purpose of obtaining patients."

With the creation of special official boards designed to place specialism before the American public on a basis of qualifications rather than declaration and with the publication of a new official medical directory by the American Medical Association every two years, it seems entirely timely to call the attention of the physicians of this state to this resolution adopted by the National Association and to urge physicians to support the spirit of this resolution by strictly avoiding this undignified and unethical method in securing patients. Just as soon as qualifying boards are established and in operation, the medical directory of the American Medical Association will designate qualified and certified specialists and thus maintain their preëminence in this field.

#### HARRISON NARCOTIC LAW

It would seem appropriate and advisable at this time to call the attention of the members of the medical profession in Iowa to the provisions of the Harrison Narcotic Law. There has been some misunderstanding concerning the type of patients to whom narcotics can legally be administered. We shall quote in full the section of the law which defines the limit to which physicians can go in this respect.

"Article 85. Purpose of issue. A prescription, in order to be effective in legalizing the possession of unstamped narcotic drugs and eliminating the necessity for use of order forms, must be issued for legitimate medical purposes. An order purporting to be a prescription issued to an addict or habitual user of narcotics, not in the course of professional treatment but for the purpose of providing the user with narcotics sufficient to keep him comfortable by maintaining his customary use, is not a prescription within the meaning and intent of the act; and the person filling and receiving drugs under such an order, as well as the person issuing it, may be regarded as guilty of violation of the law.

"Exceptions. Exceptions to this rule may be properly recognized (1) in the treatment of incurable disease, such as cancer, advanced tuberculosis, and other diseases well recognized as coming within this class, where the physician directly in charge of a bona fide patient suffering from such disease prescribes for such patient, in the course of his professional practice and strictly for legitimate medical purposes, and in so prescribing endorses upon the prescription that the drug is dispensed in the treatment of an incurable disease; or if he prefers he may endorse upon the prescription 'Exception (1), article 85.' (2): A physician may prescribe for an aged and infirm addict, whose collapse would result from the withdrawal of the drug, provided he endorses upon the pre-

scription that the patient is aged and infirm, giving age; or if he prefers he may endorse upon the prescription 'Exception (2), article 85.'

Prescribing or dispensing narcotic drugs to transient or unknown patients is always dangerous unless preceded by a very thorough and complete physical examination. The physician may then be sure that the patient is actually suffering from an incurable disease and may thus legitimately prescribe or dispense the needed drug. Such an examination would also reveal the drug addict who seeks the drug merely to maintain his habit. Another matter which should be given the physician's most careful attention is the manner of writing prescriptions, or, if he dispenses his own drugs, the records which he keeps of such dispensing. The prescription must bear the diagnosis of the condition for which the drug is being prescribed. For example, the physician who prescribes a narcotic drug and writes on the prescription blank "for pain," is considered guilty of violating the narcotic law. The prescription must carry the diagnosis, that is, "for treatment of cancer," "for treatment of advanced tuberculosis," etc., or "Exception (1), article 85," "Exception (2), article 85," as explained in the preceding paragraphs. The physician who dispenses drugs must keep an accurate record of all amounts dispensed, to whom dispensed, the patient's address, the quantity and type of the drug, the date on which it was dispensed and the diagnosis of the patient's condition for which the drug was given.

Each practitioner in the state would do well to familiarize himself with the provisions of the Harrison Narcotic Law, since "ignorance of the law" has never been accepted as a legitimate reason for failing to comply with the provisions of any statute. It is essential for each physician to protect himself against violating this important law.

**ANNUAL CLINIC, COLLEGE OF MEDICINE  
STATE UNIVERSITY OF IOWA  
NOVEMBER 12-14, 1936**

**Thursday, November Twelfth**

Medical Amphitheater, 3rd Floor East  
University Hospital

Dr. E. M. MacEwen, presiding

- 9:00 A. M. Syphilis, Dr. P. C. Jeans  
10:00 A. M. Ophthalmology in the General Practice of Medicine, Dr. C. S. O'Brien  
11:00 A. M. Pneumonia, Dr. Ernest E. Irons, Clinical Professor of Medicine, Rush Medical College

Dr. F. M. Smith, presiding

- 1:30 P. M. Arthritis, Dr. Ernest E. Irons  
2:30 P. M. Epitheliomas of the Skin: Diagnosis and Treatment, Dr. Ruben Nomland

3:30 P. M. Genito-urinary Diseases, Dr. N. G. Alcock

4:30-5:00 P. M. Case reports

**Friday, November Thirteenth**

Medical Amphitheater

- 9:00 A. M. Symposium—Peptic Ulcer, Dr. F. M. Smith  
11:00 A. M. Peritonitis: A Consideration of Some of Its Problems, Dr. Vernon C. David, Clinical Professor of Surgery, Rush Medical College

Dr. E. D. Plass, presiding

- 1:30 P. M. Carcinoma of the Large Bowel, Dr. Vernon C. David  
2:30 P. M. Obstetrics, Dr. E. D. Plass  
3:30 P. M. The Lesser Degrees of Mania and Melancholia, Dr. A. H. Woods  
Neurasthenia, Dr. William Malamud

4:30-5:00 P. M. Case reports

In addition to the continuous session in the medical amphitheater the following demonstrations or clinics will be given on Friday, beginning at 3:30 P. M., Children's Hospital, Dr. A. Steindler: Low back pain, arthritis, osteomyelitis of the spine, fracture deformity of the upper extremity, subdeltoid bursitis, treatment of infantile paralysis. University Hospital, Department of Radiology, Dr. H. D. Kerr: fractures, pulmonary tuberculosis. University Hospital, surgical amphitheater, special diagnostic measures in neurosurgery, Dr. O. R. Hyndman.

7:30 P. M.

Smoker, Fine Arts Building

**Saturday, November Fourteenth**

Medical Amphitheater

Dr. C. Van Epps, presiding

- 9:00 A. M. The Diagnosis and Treatment of Compression Paraplegia, Dr. A. Steindler  
10:00 A. M. Otolaryngology, Dr. D. M. Lierle  
11:00 A. M. Neurology, Dr. C. Van Epps

Football game—Purdue vs. Iowa  
Iowa Stadium—2:00 P. M.

Visitors will be welcomed in any department. The information desk will undertake to locate members of the staff on request. Lunches may be secured at moderate prices at the Hospital Cafeteria. Tickets for the Iowa-Purdue football game may be secured from Charles S. Galiher, Field House, Iowa City, Iowa. The Annual Clinic is offered by the College of Medicine, State University of Iowa, and the committee on arrangements consists of Drs. P. C. Jeans, Chairman; J. A. Greene, H. D. Kerr, H. P. Lee, C. I. Miller, C. S. O'Brien, F. R. Peterson, E. D. Plass, E. W. Scheldrup, D. H. Slaughter, F. M. Smith and Mr. R. E. Neff.



# MINUTES OF STATE SOCIETY COMMITTEE MEETINGS

## Meeting of the Council

September 3, Hotel Fort Des Moines

*Roll Call.* Council members present were: Felix A. Hennessy, Calmar, chairman; L. R. Woodward, Mason City; F. P. Winkler, Sibley; James E. Reeder, Sioux City; E. B. Bush, Ames; C. W. Ellyson, Waterloo, secretary; A. W. Erskine, Cedar Rapids, also chairman of the Committee on Medical Education and Hospitals; C. A. Boice, Washington; H. A. Spilman, Ottumwa; J. G. Macrae, Creston; and M. C. Hennessy, Council Bluffs. Also present were: Prince E. Sawyer, Sioux City, president; Robert L. Parker, Des Moines, secretary; E. M. MacEwen, Iowa City, dean of the College of Medicine; Walter L. Bierring, Des Moines, State Health Commissioner; Daniel J. Glomset, Des Moines, chairman of the Speakers Bureau Committee; James E. Dunn, Davenport, member of the Speakers Bureau Committee; and D. M. Nelson, Des Moines, executive secretary.

*Transactions.* 1. Review of correspondence with Dubuque county physicians since May meeting of Council. Letter formulated and approved in reply to the Dubuque County Medical Society regarding date of acting on membership applications on file. 2. Report of Council Committee on constitution and by-laws. No changes yet formulated. 3. Matter of insurance for hospitalization and medical services brought up by chairman of Committee on Medical Education and Hospitals. At his suggestion matter was referred to Committee on Medical Economics for its approval, disapproval or suggestions. 4. Chairman of Committee on Medical Education and Hospitals reported on matter of Fracture Committee which had been referred by House of Delegates. Reported that with approval of the Council, his committee would appoint an executive committee of about seven members. In addition each county society would be asked to name one member. These combined would form the Fracture Committee of the Iowa State Medical Society, whose purpose is to be educational. Council approved the proposal. 5. Chairman of the Speakers Bureau Committee reviewed briefly the history of Bureau since its inauguration. Outlined activities in more detail for past year. Asked more cooperation from Council. Dr. Dunn reported his study of the matter of newspaper publicity as operated by other state medical societies, Wisconsin in particular. Outlined plan of procedure, its benefits, cost, etc. Council moved to recommend to Board of Trustees that a sufficient fund be allowed so that this activity could be carried out under supervision of Speakers Bureau. 6. Dean of the College of Medicine outlined the plans for the program for indigent crippled children to be carried out under the provisions of the Social Security Act. Plans include diagnostic clinics to be conducted in the counties only upon approval of county society and councilor for the purpose of locating crippled children throughout state. Faculty members of College of Medicine to

be used only in capacity of consultants upon request of local doctors. Orthopedic nurses to assist doctors will be available. Trained medical workers to assist in outlining course of treatment for discharged patients which will conform to the home environment. Some research work in keeping records of cases and results required. Providing a physiotherapist for the Junior League Convalescent Home in Des Moines. Establishing a convalescent home in addition to hospital for care of chronic cases and those not needing hospitalization, thus making hospital available for more cases. Compensation for physicians conducting diagnostic clinics. Treatment to be confined to hospital at Iowa City. Council suggested decentralizing the treatment of these children. The Dean reported this was believed to be impossible under provisions of the Act and our state laws. Council approved the report. 7. Public health program under provisions of Social Security Act was outlined by State Health Commissioner. Increasing physical equipment and trained personnel in all departments. Described plans for district health units as explained in editorial in September JOURNAL. Council offered comments and suggestions regarding immunization program. Vote of approval of Commissioner's proposals given by Council.

## Iowa Interprofessional Association September 13, Hotel Fort Des Moines

*Roll Call.* Iowa Pharmaceutical Association, official delegates, Walter Meads, Des Moines, and George Judisch, Ames; ex-officio members, Denny Brann, Des Moines, and George W. McChane, Waterloo. Iowa Veterinary Medical Association, official delegates, Robert D. Wall, Des Moines; J. C. Carey, West Liberty, and H. A. Seidell, Des Moines; ex-officio member, A. L. Born, Story City. Iowa State Dental Society, official delegates, J. E. Marion, Des Moines; Hardy F. Pool, Mason City, and R. S. Sommers, Des Moines (representing Dr. Charters of Des Moines). Iowa State Association of Registered Nurses, Molanda Silzer, Des Moines; Wavie Stiles, Des Moines, and Alma E. Hartz, Des Moines. Iowa State Medical Society, official delegates, Fred Moore, Des Moines, and R. D. Bernard, Clarion; ex-officio members, Prince E. Sawyer, Sioux City; Robert L. Parker, Des Moines; unofficial, D. M. Nelson, Des Moines, executive secretary.

*Transactions.* Formal adoption of constitution (printed in July JOURNAL). Election of Executive Council: Walter Meads, secretary of Pharmacy Commission; J. W. Marion, D.D.S.; Robert D. Wall, D.V.M.; Alma E. Hartz, R.N. (interim member); R. D. Bernard, M.D. Election of officers of the association by the executive council: R. D. Bernard, M.D., president; J. W. Marion, D.D.S., vice president; and Walter Meads, secretary and treasurer. Discussion of desirable activities of association, particularly that of promotion of and cooperation with local units. Discussion and adoption of constitution for local units of the Interprofessional Association similar to that for the state association. Discussion

of amount of dues desired from each state society in the association; \$100 to \$150 agreed upon for all but nurses association, \$50.00 for them.

#### Meeting of Program Committee

September 20, Hotel Fort Des Moines

*Roll Call.* Those in attendance were: Prince E. Sawyer, Sioux City, president; Robert L. Parker, Des Moines, secretary; A. D. Woods, State Center, vice chairman of Medical Section; W. A. Sternberg, Mt. Pleasant, chairman of Surgical Section; Wayne J. Foster, Cedar Rapids, chairman of eye, ear, nose and throat section; E. M. Myers, Boone, president elect; and D. M. Nelson, Des Moines, executive secretary.

*Transactions.* Introduction of A. D. Woods, M.D., of State Center as vice chairman of the Medical Section of the 1937 Program Committee, appointment being made because of the illness of R. N. Larimer, M.D., of Sioux City, original chairman of the section. Discussion revealed that plans for the general session were practically complete. Guest speakers include Louis Hamman, Johns Hopkins University School of Medicine, medical section; Dean Lewis, Johns Hopkins University School of Medicine, surgical section; Sanford Gifford, Chicago, eye, ear, nose and throat section; Clifford Grulee, Chicago; and possibly Charles Heyd, New York, president, American Medical Association. Programs for the three sectional meetings each afternoon of the meeting are nearing completion, and will consist of five speakers for each section each afternoon with two discussors for each talk.

#### Meeting of Board of Trustees

September 24, State Society Office

*Roll Call.* Members of the Board present were: Oliver J. Fay, Des Moines, chairman; John I. Marker, Davenport; and John C. Parsons, Creston. Others present were: Fred Moore, Des Moines, chairman of the Legislative Committee; Robert L. Parker, Des Moines, secretary; R. R. Simmons, Des Moines, editor; D. J. Glomset, Des Moines, chairman of the Speakers Bureau Committee; Harold J. McCoy, Des Moines, treasurer; Felix A. Hennessy, Calmar, chairman of the council; and D. M. Nelson, Des Moines, executive secretary.

*Transactions.* Discussion of legislative activities. Determination of policy regarding publication of statements of candidates for office. Chairman of the Speakers Bureau Committee explained the plan of newspaper publicity, and the Council recommendation. Board approved plan of preparing sample columns before definite decision and appropriation. Approval and signing of monthly bills.

#### Meeting of Committee on Public Policy and Legislation

September 29, State Society Office

*Roll Call.* Fred Moore, Des Moines, chairman; and R. D. Bernard, Clarion.

*Transactions.* Discussion of activities. Adjourned

to attend meeting of Des Moines Academy of Medicine and Polk County Medical Society for discussion of Social Security Act.

#### Meeting of Committee on Medical Economics

September 29, State Society Office

*Roll Call.* T. F. Thornton, Waterloo, chairman; A. C. Moerke, Burlington; M. C. Hennessy, Council Bluffs; James C. Hill, Newton; and D. M. Nelson, Des Moines, executive secretary.

*Transactions.* Plan for insurance for hospitalization and medical services referred to this Committee by Council and Committee on Medical Education and Hospitals explained by proponent. Committee advised completion of plan, securing actual charter from Insurance Commission before submitting it to the Committee for action. Study of plan of insurance against hospitalization of the Sentinel Hospital Insurance Company of Des Moines. Committee decided such plans were of no concern to medical profession. No action taken. A. P. Stevens and Associates, collection agency of Cedar Rapids, Iowa, applied to Committee for approval. Committee requested usual formal investigation of this company before action could be taken. Discussion of problem of medical relief. Opinion of Committee was that this is a local problem and plan of operation should be determined by local county medical society. Expressed belief that wherever possible medical relief should be handled entirely locally. Discussion of contract practice under workmen's compensation laws. Committee decided to investigate this matter. Adjourned to attend meeting of Des Moines Academy of Medicine and Polk County Medical Society for discussion of Social Security Act.

#### RADIO SCHEDULES

WOI—Fridays at 4:00 p. m.

WSUI—Mondays at 8:15 p. m.

Oct. 2 and 5—Prenatal Care

R. E. Crowder, M.D.

Oct. 9 and 12—Venereal Diseases

Carl F. Jordan, M.D.

Oct. 16 and 19—"The Germs Will Get You If You Don't Watch Out"

Preston E. Gibson, M.D.

Oct. 23 and 26—Your Gallbladder

Lester D. Powell, M.D.

Oct. 30 and Nov. 2—Talk on Tuberculosis Seal Sale

Nov. 6 and 9—Eugenics and Its Relation to the Community

W. W. Bowen, M.D.

Nov. 3 and 16—Death Begins at Forty

C. L. Putnam, M.D.



## HOWARD LOMBARD BEYE

### 1886 - 1936

Dr. Howard Beye is dead. Had he time to send a farewell note to his friends, I believe his sentiment would have been that of the poet quoted.

It is difficult not to moan over the loss of a friend, and it sends despair to the inmost parts of one's being to realize that Dr. Beye is gone. Only recently had he completed the grilling apprenticeship of his life, and begun to do mighty work for medicine, not alone as a teacher to medical students and his colleagues, but also as a healing benefactor of the sick in Iowa. Not only that, but if ever there was a period in family life when the presence of the father is more imperative in the hearth circle, the Beye family was in that state at the time of his death. The other places he has held in society may be filled in due course of time, but the family circle will remain forever broken.

In such a calamity, moaning would seem justified; yet such is life, and such life has always been, and strong men and women have carried on in spite of it. There are many earnest people who live in the strong conviction that life goes on after death, that we will be given an opportunity in the hereafter to finish under more auspicious circumstances the work we have started here. That is a beautiful thought belonging to the realm of faith and hope. However that may be, this much is certain—one's influence lives on. Every human being is visible but for an instant, then plunges into the sea of life to disappear forever; yet the individual leaves waves in this sea which go on and on, and the stronger and bigger the soul, the more vigorous and larger the waves.

Dr. Beye's was a big soul, and his influence for good will continue among his many friends, it will be carried on and magnified in Iowa medicine through the work he did as a teacher and as a lecturer. We of the Speakers Bureau realize as no one else his valuable contributions to the flame of progressive Iowa medicine which we are striving to keep burning. His attitude in this work, an attitude which has encouraged us many times, is best expressed in a letter we received from him



*"And may there be no moaning  
of the bar when I put out to  
sea."*

—TENNYSON.

but a few days ago: "At all times I am very glad to cooperate with you in your work just so long as this does not interfere with our major responsibility in the medical school here." Dr. Beye's family may know that the waves of influence created by Howard Beye will continue to cheer and hearten all the members of this society as long as they shall live.

We reverently bow our heads, in honor of your memory, Howard, and fervently pray that we all may be big enough to live as you did, and to carry forward your ideals of service to humanity.

Daniel J. Glomset, M.D.

Howard Lombard Beye was born in Oak Park, Illinois, September 24, 1886, and was killed in an automobile accident near Marshalltown, Iowa, September 29, 1936. He was graduated from the University of Wisconsin with the degree of Bachelor of Science in 1909, and took his medical training at Rush Medical School, receiving his degree in medicine in 1911. He interned at Cook County Hospital in Chicago from 1911 to 1913, when he was made assistant in medicine at Rush Medical School. Dr. Beye came to the University of Iowa as instructor in surgery in 1914, was made assistant professor of surgery in 1917, and associate professor of surgery in 1920. In 1924 he was made professor of surgery, and in 1927 was given the position as head of the department of surgery of the College of Medicine.

He belonged to Psi Upsilon and Phi Rho Sigma fraternities; was a Fellow of the American College of Surgeons; a member of the American Surgical Association; the American Association of Thoracic Surgery; the Western Surgical Association; the Johnson County Medical Society; the Iowa State Medical Society; and the American Medical Association. He served overseas during the war, and was wounded in action at Chateau Thierry. On July 30, 1920, he was married to Ruth Ketcham of Oak Park, Illinois, and is survived by his widow and six children, Helen, Cyrus Lombard, Jane Waters, Barbara, Charles Rowan, and Ruth.

# SPEAKERS BUREAU ACTIVITIES

## COUNTY SOCIETY PROJECTS

The attention of the Speakers Bureau has been drawn to several excellent county society projects which are being carried out this year, and because these should be of interest to other societies throughout the state, the details of some of them will be published on the Speakers Bureau page in the JOURNAL from time to time.

The Crawford County Medical Society is presenting a course in public health for all of the high school students in that county. A course of nine lectures, one for each month of the school year, has been outlined, and nine physicians have been selected to make these talks. Through the cooperation of the school boards in the county, a rotating schedule has been completed, so that every talk will be given to every high school during the school year. It is the plan of the Crawford County Medical Society to continue this work from year to year, thus giving to the students nine hours each year of public health lectures, or a total of thirty-six hours for the four year high school term.

Fifty minutes of each period will be devoted to the lecture itself, and ten minutes at the conclusion will be allowed for questions from the students. The program to be presented this year is as follows:

- "Heart Diseases and How to Prevent Them"  
Henry Durst Jones, M.D., Schleswig
- "Epidemic Contagious Diseases and Their Complications"  
Dora E. Kielhorn Zaeske, M.D., Charter Oak
- "Care of the Digestive Tract"  
T. L. Vineyard, M.D., Dow City
- "Kidney Infections in Young Adults"  
Edward M. Mark, M.D., Manilla
- "Tuberculosis in High School Age Youth"  
C. A. Soe, M.D., Manilla
- "Immunizations That Are Successful"  
G. K. Fair, M.D., Denison
- "Functions and Dysfunctions of Our Ductless Glands"  
C. L. Sievers, M.D., Denison
- "Epidemic Infections of the Brain and Spinal Cord"  
Amandus H. Grau, M.D., Denison
- "Venereal Infections in the Male"  
J. James Duffy, M.D., Denison
- "Venereal Infections in the Female"

## POSTGRADUATE COURSES

Through the kindness of the faculty of the College of Medicine of the State University of Iowa, postgraduate extension courses are being presented in medicine and surgery at Chariton and Oskaloosa. The meetings at Chariton are being held on Tuesdays in the Library Building, starting at four-thirty p. m. and concluding at nine-thirty p. m. The meetings at Oskaloosa are being held on Wednesdays in the Downing Hotel, starting at five p. m. and concluding at ten p. m.

There have been a few minor changes in the original schedule, and the corrected schedule is given below.

### September 22 and 23

- Radiotherapy Dr. H. D. Kerr
- Surgery of the Hand Dr. F. R. Peterson

### September 29 and 30

- Pediatrics Dr. P. C. Jeans
- Obstetrics Dr. E. D. Plass

### October 6 and 7

- Diabetes Dr. J. D. Boyd
- Gastro-Intestinal Tract Dr. F. M. Smith

### October 13 and 14

- Anemia Dr. W. M. Fowler
- Recent Advances in Therapeutics Dr. O. H. Plant

### October 20 and 21

- Uterine Prolapse Dr. W. F. Mengert
- Malignancies of the Genito-urinary Tract Dr. N. G. Alcock

### October 27 and 28

- Non-Tuberculous Diseases of the Chest Dr. W. D. Paul
- Psychiatry for the General Practitioner Dr. A. H. Woods

### November 3 and 4

- Physiotherapy Dr. Arthur Steindler
- Carcinoma of the Skin Dr. R. F. Nomland

### November 10 and 11

- Neurology Dr. C. Van Epps
- Intracranial Surgery Dr. O. R. Hyndman

### November 17 and 18

- Ear, Nose and Throat Dr. D. M. Lierle
- The Heart Dr. H. M. Korns

### November 24 and 25

- Fractures Dr. F. R. Peterson
- Diseases of the Endocrine System Dr. J. A. Greene



# WOMAN'S AUXILIARY NEWS

*Edited by the Press and Publicity Committee*

MRS. DEAN W. HARMAN, *Chairman*, Glenwood, Iowa

## FALL BOARD MEETING

The fall board meeting of the Woman's Auxiliary to the Iowa State Medical Society was called by the president, Mrs. C. A. Boice, of Washington, Thursday, September 3, at the Hotel Fort Des Moines. Eighteen members were in attendance. Greetings were extended by Dr. Prince E. Sawyer, president of the Iowa State Medical Society. He spoke of the services the Auxiliary could render the profession and expressed the wish that it might expand and equal the State Medical Society in size.

Mrs. Boice named the committees for the year and reports of the standing committees were given. A discussion of the essay contest followed with the suggestion that a drive for more voluntary contributions be carried on, and that the Auxiliary reduce its prizes to fifty dollars. Mrs. M. C. Hennessy reported that the National Educational Headquarters would send out program suggestions to each county president. Mrs. P. M. Jessup of Muscatine was elected to serve as third vice president, replacing Mrs. A. T. Bryan who resigned. The president urged each unit to strive to win the Gertrude Downing cup, now held by Wapello County.

The meeting adjourned for luncheon at one o'clock, and the more serious business of seeing the Republican and Democratic nominees for president, who were attending the drought conference in Des Moines that day.

Myra Spilman, Secretary

## WOODBURY COUNTY

The Woman's Auxiliary or Sioux Medical Dames of Woodbury County held their fall meeting with their husbands on Wednesday, September 9. A dinner was enjoyed at the Country Club and as the meeting was entirely social no business was transacted. In the absence of Mrs. Larimer, the president of the organization, Mrs. Roy E. Crowder called upon Dr. Prince E. Sawyer for a few words of greeting. He stressed the need of education by the women along the present professional lines, saying they could be of great assistance to their husbands and to the profession. The organization will soon be making plans for the entertainment of visiting wives during the annual meeting next May of the Iowa State Medical Society in Sioux City.

## BOOK LIST

The following list of books about doctors and doctors' problems has been compiled by Mrs. Russell C. Doolittle of Des Moines and is here presented through the courtesy of the Woman's Auxiliary to the Polk County Medical Society. This list will be completed in an early issue of the JOURNAL.

- Allen, James Lane  
The Doctor's Christmas Eve, Macmillan Company, New York, 1910.
- Baldwin, Faith  
American Family, Farrar, 1935.
- Bottome, Phyllis  
Private Worlds, Houghton-Mifflin Company, 1934.
- Coleman, Emily Holmes  
The Shutter of Snow, Viking Press, 1930.
- Cozzens, James G.  
The Last Adam, Harcourt Brace & Company, 1933.
- Daukes, Sidney Herbert  
The Doctor's Defense, H. C. Kinsey, Publisher, 1932.
- Deeping, Warwick  
Roper's Row, Cassell, Publishers, 1931.
- Sorrell and Son, Cassell, Publishers, 1930.
- Douglas, Lloyd C.  
The Green Light, Houghton-Mifflin Company, 1935.
- The Magnificent Obsession, Houghton-Mifflin Company, (about 1932).
- Doyle, A. Conan  
Round the Red Lamp, J. Murray, Publisher, 1934.
- Duncan, Norman  
Dr. Luke of the Labrador, Revel, New York, 1904.
- Gordon, Charles W.  
"The Doctor," Revell, New York, 1906.
- Jewett, Sarah Orne  
The Country Doctor, Houghton-Mifflin Company, 1884.
- Jordan, Mrs. Helen R.  
Dr. Serocold, Doubleday, Doran & Company, 1930.
- Lewis, Sinclair  
Arrowsmith, Harcourt, Publishers, 1931.
- Maclaren, Ian (pseud.) Watson, John  
Beside the Bonnie Briar Bush, Dodd.
- Maugham, W. Somerset  
Of Human Bondage, Grossett & Dunlap, New York, 1915 (and 1932).
- Morrison, Peggy (March Cast, pseud.)  
The Dark Glass, Knopf, Publishers, 1935.
- Mulder, Arnold  
Sand Doctor, Houghton-Mifflin Company, 1921.
- Norris, Kathleen  
Beauty's Daughter, Doubleday, Doran & Company, 1935.
- Oppenheim, James  
Dr. Rast, Sturgis and Walton, Publishers, 1909.
- Poole, Ernest  
The Destroyer, MacMillan Company, 1931.
- Prouty, Mrs. Olive (Higgins)  
White Fawn, Houghton-Mifflin Company, 1931.
- Richardson, Henry Handel  
Australie Felix, W. W. Norton and Company, New York, 1931.

## SOCIETY PROCEEDINGS

### Boone-Story Medical Society

A joint meeting of members of the Boone and Story Medical Societies and the veterinarians of the Iowa State College and the two counties, was held Wednesday, September 23, at the Ames Golf and Country Club. A symposium on undulant fever was presented by the following speakers: Professor S. H. McNutt, D.V.M., Iowa State College, Brucella Infection in Animals; Professor A. I. Merchant, D.V.M., Iowa State College, Epidemiology of Undulant Fever; and N. M. Whitehill, M.D., of Boone, Undulant Fever in Humans. The symposium was discussed by Carl F. Jordan, M.D., Des Moines, State Department of Health, and Charles Murray, D.V.M., Dean of Veterinary Medicine, Iowa State College. All were excellent papers and were well received. We expect to hold occasional meetings jointly with the veterinarians for the discussion of diseases common to both animals and humans.

E. B. Bush, M.D., Secretary  
Story County Medical Society

### Calhoun County

The Calhoun County Medical Society held its regular monthly meeting Tuesday, September 15, in Rockwell City, for the special purpose of discussing legislative matters of interest to the medical profession. Twenty members and guests were present at the program which was presented by the following speakers: Edward A. Benbrook of Ames, secretary of the Iowa Basic Science Board; Miss Lillian McGeachey of Fort Dodge, district consultant on the child welfare phase of the Social Security Act; and R. D. Bernard, M.D., of Clarion, member of the committee on public policy and legislation of the Iowa State Medical Society.

P. W. Van Metre, M.D., Secretary

### Cerro Gordo County

The regular monthly meeting of the Cerro Gordo County Medical Society was held in Mason City, Tuesday, September 15. Walter D. Abbott, M.D., of Des Moines, addressed the society on the subject of Surgical Treatment of Head Injuries. William C. Egloff, M.D., of Mason City, spoke on Surgery in the Presence of Cardiac Disease. C. E. Dakin, M.D., also of Mason City, presented a report from the Fracture Committee of the State Society, stating the purposes and aims of the committee and promising a series of communications to be given at each meeting regarding the diagnoses and management of various types of fractures.

The next meeting of the society will be held Tuesday, October 13, at the Hotel Cerro Gordo in Mason City. The speaker of the evening will be H. Winnett Orr, M.D., of Lincoln, Nebraska, who will address the society on The Treatment of Compound Fractures. There will also be a paper by Draper Long, M.D., of

Mason City, on The Indication and Methods of X-ray Pelvimetry.

H. W. Morgan, M.D., Secretary

### Clinton County

George B. Eusterman, M.D., of Rochester, Minnesota, was guest speaker for the Clinton County Medical Society at a meeting held at the Country Club in Clinton, Thursday, September 3. Dr. Eusterman spoke on The Significant Recent Contributions to the Diagnosis and Therapy of Gastroduodenal Disorders. On Thursday, October 1, Daniel L. Sexton, M.D., of St. Louis, Missouri, addressed the society on Endocrinology in General Practice.

G. M. Ellison, M.D., Secretary

### Dickinson-Emmet Societies

A joint meeting of the Dickinson and Emmet County Medical Societies was held at the City Hall in Estherville, Thursday, September 17. Dinner was served at six-thirty, after which the following program was presented: The Lawyer and his Relation to the Physician, Harry E. Coffie; The Coroner and his Relation to the Physician, Fred Sternborg; Dental Infections of Interest to the Physician, T. V. Maytum, D.D.S.; My Recent Trip, G. H. West, M.D.; and Pending Legislation, M. T. Morton, M.D.

E. E. Lashbrook, M.D., Secretary

### Dubuque County

The Eighty-third Annual Session of the Dubuque County Medical Society convened in Dubuque, Tuesday, September 22. In the morning the following program was presented by Dubuque physicians: Cirrhosis of the Liver and Subacute Yellow Atrophy of the Liver, D. W. Leik, M.D.; Care of Premature Infants, W. J. Connell, M.D.; A Case of Subcutaneous Oxygen Therapy, Theodore Stuckart, M.D.; Solitary Cyst of the Lung, A. B. Nesler, M.D.; Pollen, Hay Fever and Asthma, L. E. Cooley, M.D.; A Case of Phytobezoars, J. C. Hancock, M.D.; and An Unusual Stone in the Bladder, J. J. Brownson, M.D. After the noon luncheon members of the society were addressed by the following guest speakers: Budd C. Corbus, M.D., professor of genito-urinary surgery, Northwestern University Medical School, Chicago, on Intradermal Immunization in Gonorrheal Infections; Earl C. Sage, M.D., professor of obstetrics, University of Nebraska, Omaha, on Errors Made in Obstetric Practice; and F. H. K. Schaaf, M.D., professor of medicine, University of Minnesota, Minneapolis, on Liver Function and Differential Diagnosis of Jaundice.

### Jackson County

The Jackson County Medical Society held a dinner meeting at the Clubhouse in Maquoketa, Thursday, September 24, with the following speakers: Arthur



W. Erskine, M.D., of Cedar Rapids, The Cancer Problem in Iowa; J. Stuart McQuiston, M.D., also of Cedar Rapids, Case Reports on Multiple Sclerosis, Parkinson's Syndrome, and Neurologic Manifestations of Pernicious Anemia; and Frank B. Dorsey, Jr., M.D., of Keokuk, That Acute Upper Abdomen. About forty members and guests attended the dinner and excellent scientific program.

William Lowder, M.D., Secretary

#### Jasper County

Milo G. Meyer, M.D., of Marshalltown, was the speaker of the evening when the Jasper County Medical Society met Tuesday, September 1, in Newton. Dr. Meyer addressed the group on The Irritable Colon.

#### Jefferson County

The Jefferson County Medical Society met Friday, September 18, at the Turner Hotel in Fairfield. R. M. Sorensen, M.D., of Washington, outlined plans for the organization of a health unit, which would combine four or five counties into one district. Clyde A. Boice, M.D., also of Washington, and councilor of the eighth district, reported on the attitudes of the various political candidates in regard to medical matters.

Ludwig Gittler, M.D., Secretary

#### Johnson County

The October meeting of the Johnson County Medical Society was held at Youde's Inn, Wednesday, October 7. After the six o'clock dinner, Ruben Nomland, M.D., spoke on The Classification and Treatment of Eczema and Dermatitis.

#### Linn County

William G. MacCallum, M.D., pathologist, Johns Hopkins Hospital, Baltimore, Maryland, was guest speaker for the Linn County Medical Society at the regular meeting held Friday, October 2, in Cedar Rapids. Dr. MacCallum spoke on The General Characteristics of the Hypophysis, and his address was discussed by H. P. Smith, M.D., Iowa City; James W. Kernohan, M.D., Rochester, Minnesota; Harold Swanberg, M.D., Quincy, Illinois; and Fred W. Mulsow, M.D., Cedar Rapids. Another feature of the program was a paper on Pneumonia, presented by William E. Owen, M.D., of Cedar Rapids.

On Tuesday, October 27, the society will have as its guest Elliott P. Joslin, M.D., professor of clinical medicine, Harvard University, Boston, Massachusetts, who will speak on The Treatment of Diabetes.

#### Madison County

The Madison County Society held a dinner meeting Monday, September 14, at the hospital in Winterset, after which Fred Moore, M.D., of Des Moines, chairman of the committee on public policy and legislation, spoke on various points of interest that concern the medical profession. There was keen interest, and the discussion, participated in by every man present, lasted until nearly midnight. Our county society has started another year of work and

is looking forward to a program every month. We extend a cordial invitation to members of the profession from neighboring towns and counties to meet with us for a dinner meeting on the second Monday of every month.

J. F. Veltman, M.D., Secretary

#### Marion County

George H. Clark, M.D., of Oskaloosa, presented a fine discourse on Allergy, at the meeting of the Marion County Medical Society held in Knoxville, Thursday, September 17. He spoke of the great variety of foods and other materials causing symptoms, and the contrasting ease and difficulty with which different cases were cured. Those present felt it was unusually unfortunate that so few were able to benefit by the presentation of Dr. Clark's discussion.

J. R. Wright, M.D., Secretary

#### Polk County

The Des Moines Academy of Medicine and Polk County Medical Society held a meeting in Des Moines, Tuesday, September 29. After calling the meeting to order, President Losh expressed the sorrow of the medical profession for the accidental death of Dr. Howard L. Beye, and the great loss to the University of Iowa, College of Medicine in his untimely death. The members and guests present stood in silent reverence in token of their respect for this great surgeon and teacher.

Fred Moore, M.D., chairman of the committee on public policy and legislation, discussed very briefly the efforts of the committee to maintain the basic science law, as enacted, against the efforts of antagonists to the legislation. The principal speaker of the evening was Oliver J. Fay, M.D., who delivered a most enlightening and educational paper on the subject of Would the Practice of Medicine as Envisaged Through the Social Security Act Contribute to the Security of Either the Public or the Medical Profession? The paper and the subject were discussed by James C. Hill, M.D., of Newton, and A. C. Moerke, M.D., of Burlington, members of the committee on medical economics; and Walter L. Bierring, M.D., State Commissioner of Health. Dr. Moore was called upon to tell how the members of the profession can help in obtaining desirable legislation and how they will be informed as to the attitude of the several candidates for public office.

A special scientific meeting of the society will be held at the Hotel Fort Des Moines, Tuesday, October 13, at which time Joseph A. Weinberg, M.D., associate professor of clinical pathology and assistant professor of surgery at the University of Nebraska, College of Medicine, Omaha, will speak on the subject of Bronchiectasis; and Harold E. Eggers, M.D., professor of pathology and bacteriology at the University of Nebraska, College of Medicine, Omaha, will discuss The Experimental Study of Cancer.

E. M. Kingery, Executive Secretary

#### Pottawattamie County

Guest speaker for the Pottawattamie County Medical Society at its opening meeting this fall, held at

the Mercy Hospital in Council Bluffs, Monday, September 21, was Charles H. Watkins, M.D., of The Mayo Clinic, Rochester, Minnesota, who chose as his subject, The More Common Blood Dyscrasias. Case presentations were given by Council Bluffs physicians as follows: Late Toxemias of Pregnancy, C. V. Edwards, M.D.; Cicatricial Stenosis of the Esophagus, S. D. Maiden, M.D.; and Perforated Duodenal Ulcer, Joseph L. Stech, M.D.

The next meeting of the society will be held Monday, October 12, when members of the Woodbury County Medical Society will present the scientific program.

Fred H. Beaumont, M.D., Secretary

#### Scott County

Arthur J. Barsky, M.D., professor of plastic surgery at the New York Polyclinic Medical School and Hospital, addressed members of the Scott County Medical Society, at the regular meeting of that organization held in Davenport, Thursday, October 1. Dr. Barsky's subject was Some Principles of Plastic Surgery for the General Practitioner.

#### Tama County

The Tama County Medical Society held its regular September meeting at Garwin, Friday, September 11. Fourteen doctors were present at the session which was held in the Christian Church, where dinner was served to the doctors and their guests. Benjamin F. Wolverton, M.D., of Cedar Rapids, addressed the meeting on The Changing Conception of Treatment of Heart Disease. His paper was interesting and was freely discussed.

Albert A. Crabbe, M.D., Secretary

#### Van Buren County

A very enjoyable day was spent by members of the Van Buren County Medical Society, Thursday, August 20, at a picnic held in the Farmington State Park. After the dinner the following scientific program was presented: Peptic Ulcer, R. L. Feightner, M.D., of Fort Madison; and Infant Feeding, Frank M. Fuller, M.D., of Keokuk.

C. R. Russell, M.D., Secretary

#### Washington County

Professor W. J. Teeters, dean of the College of Pharmacy, State University of Iowa, furnished the scientific program for the Washington County Medical Society at a meeting held in Kalona, Tuesday, September 29, speaking on Chemistry in the Detection of Poisons.

#### Woodbury County

The Woodbury County Medical Society will entertain Max Cutler, M.D., director of the tumor clinic, Michael Reese Hospital, Chicago, as its guest speaker for the November meeting.

#### PERSONAL MENTION

Dr. Arthur D. Woods of State Center, has recently been appointed vice chairman of the section on medicine to assist in planning the medical section program for the Eighty-sixth Annual Session of the Iowa State Medical Society.

Dr. John Willard Hanson, who was graduated in 1934 from the University of Minnesota Medical School, has located in Northwood. Dr. Hanson comes direct from Dunnell, Minnesota, where he has practiced for the past year.

Dr. G. E. Harrison of Mason City, addressed the Clear Lake Rotary Club, Thursday, September 17, on "Mystery, Magic and Medicine."

Dr. F. T. Launder, after thirty-six years of practice in Garwin, has resigned from active service, and has turned over his practice to Dr. C. V. Morrison, who was graduated from the State University of Iowa, College of Medicine, in 1933.

Dr. E. C. Sage of Eagle Grove, has received an appointment to Johns Hopkins University in Baltimore, Maryland, for a nine months' postgraduate course in medicine. During his absence, his practice will be taken care of by Dr. Ivan Rarick of Sioux City, who was graduated from the State University of Iowa, College of Medicine, in 1932.

Dr. William B. McTaggart of Arcadia, has become associated with Dr. John S. Deering in Onawa. Dr. McTaggart is a graduate of the Creighton University School of Medicine.

Dr. E. E. Shaw of Indianola, was guest speaker for the Leon Rotary Club at its noon luncheon meeting, Monday, September 21. Dr. Shaw spoke on "Cancer—Its Cause, Effect, and Cure."

Dr. Sterling J. Ritchey, after practicing for two years in Colfax, has located in Newton, where he expects to take over the practice of Dr. John H. Faust. Dr. Ritchey was graduated from the State University of Iowa, College of Medicine, in 1932.

Dr. Ralph L. Gorrell, formerly of Stuart, Nebraska, has arrived in Clarion, where he will be associated in practice with Dr. R. G. Bird. Dr. Gorrell is a graduate of Loyola University School of Medicine.

Dr. E. M. Myers of Boone, was presented by the Mason City Business and Professional Women's Club, in a public address, Monday, October 5. Dr. Myers spoke on "Cancer."

Dr. Arthur P. Long, who was associated with the late Dr. F. A. Osincup in Waverly, has been offered a fellowship by the Rockefeller Foundation, and has already left for Boston, Massachusetts, where he will enter Harvard University.



**Dr. T. M. Mast**, who formerly practiced in Ottumwa, has located in Washington, Iowa. Dr. Mast was graduated in 1933 from the University of Arkansas School of Medicine.

**Dr. Robert A. Powell** of Omaha, has just arrived in Villisca, where he will take over the practice of Dr. John A. Liken, who is leaving to study special surgical work at the Graduate School of Medicine, University of Pennsylvania. Dr. Powell was graduated in 1935 from the University of Nebraska, College of Medicine, and has completed one year's internship at the Pasadena Hospital, Pasadena, California.

**Dr. John H. Sunderbruch**, who was graduated in 1934 from the State University of Iowa, College of Medicine, has established offices in Davenport for the practice of medicine. Dr. Sunderbruch interned at the Harper Hospital in Detroit, Michigan, later serving as house physician for the Mercy Hospital in Jackson, Michigan. For the past several months he has been connected with the United States Public Health Service Bureau at the Rock Island Arsenal.

**Dr. Clemmet W. Byrnes**, who was graduated in 1935 from Creighton University School of Medicine, and interned at St. Joseph's Hospital in Omaha, has located in Dunlap for the practice of medicine.

**Dr. Fred L. Wahrer** of Marshalltown, was named president-elect of the American Congress of Physical Therapy at the annual meeting of that organization held recently in New York City.

Newly elected officers of the Iowa Academy of Ophthalmology and Otolaryngology are: Dr. James A. Downing of Des Moines, president; Dr. Harry H. Lamb of Davenport, president-elect; and Dr. O. L. Thorburn of Ames, secretary and treasurer.

### MARRIAGES

The marriage of Miss Josephine Johnson and Dr. S. J. Ritchey, both of Colfax, took place Monday, September 21, at the Presbyterian parsonage in Colfax. Dr. Ritchey has been practicing in Colfax for the past year and one-half, and has recently moved to Newton where he will be engaged in the practice of medicine.

Miss Dorothy Doak of Iowa City and Dr. Roger Minkel of Swea City were united in marriage in Fort Dodge, Sunday, September 8. Following a wedding trip to northern Minnesota, the young couple will be at home in Swea City where Dr. Minkel has been practicing for the past two years.

**Dr. Grace O. Doane** and **Dante Pierce**, both of Des Moines, were married at the home of the former, Thursday, September 10. They will make their home in Des Moines, where Mr. Pierce is publisher of Wallaces' Farmer and Iowa Homestead, and where Dr. Doane is engaged in the specialty of treating eye, ear, nose and throat diseases.

### DEATH NOTICES

**Beye, Howard Lombard**, of Iowa City, aged fifty, died September 29, following an automobile accident. He was graduated in 1911 from Rush Medical College, Chicago, and at the time of his death was a member of the Johnson County Medical Society. A more complete obituary will be found on page 588 of this issue.

**Gibson, Charles Gordon**, of Sioux City, aged sixty-eight, died suddenly September 26, as the result of a heart attack. He was graduated in 1900 from Rush Medical College, Chicago, and at the time of his death was a member of the Woodbury County Medical Society.

### STATE DEPARTMENT OF HEALTH

(Continued from page 582)

the initial feeding was omitted and the ticks were injected directly into the test guinea pig."

Results of the transfer to separate guinea pigs of suspensions of tick substance from thirty-one sets of ticks and representing thirty-one localities in Iowa follow. Twenty-four of the tests proved negative. Four of the tests were rendered void because of the fact that the guinea pig "died of an intercurrent infection or had some reaction which suggested intercurrent infection." One test showed the presence of tularemic infection; the ticks concerned were collected in Walnut State Park, Polk County, Iowa, a few miles from Des Moines. One test was incomplete at the time of the report and the guinea pig in the remaining test showed fever of undetermined origin.

A more complete tick survey of the state is planned for the spring of 1937. With shipment in such a manner as will reduce appreciably the mortality of ticks in transit and with the collection of from fifty to one hundred specimens in each locality, rather than the much smaller number obtainable this year due largely to the drought, results of continuation of the survey should prove even more significant. It is expected that further study may throw light on the percentage of ticks in this region, harboring the virus of Rocky Mountain spotted fever.

### PREVALENCE OF DISEASE

	Aug. '36	July '36	Aug. '35	Most Cases Reported From
Diphtheria .....	13	15	17	Mills, Polk
Scarlet Fever .....	79	145	68	(For State)
Typhoid Fever .....	22	5	24	Pottawattamie, Polk
Smallpox .....	7	48	10	Woodbury
Measles .....	3	13	15	Clarke, Dubuque, O'Brien
Whooping Cough ...	50	31	59	Story, Lee, Linn
Cerebrospinal Meningitis .....	8	2	8	Polk, Scott
Chickenpox .....	15	26	2	(For State)
Mumps .....	28	44	53	O'Brien
Poliomyelitis .....	6	1	13	Pottawattamie
Tuberculosis .....	42	42	62	(For State)
Uduant Fever .....	15	6	13	(For State)
Gonorrhea .....	184	159	176	(For State)
Syphilis .....	88	94	105	(For State)

# HISTORY OF MEDICINE IN IOWA

*Edited by the Historical Committee*

DR. FRANK M. FULLER, Keokuk  
DR. JOHN T. MCCLINTOCK, Iowa City  
DR. PAUL W. VAN METRE, Rockwell City

DR. TOM B. THROCKMORTON, Des Moines  
DR. WALTER L. BIERRING, Des Moines  
DR. WILLIAM JEPSON, Sioux City

## The Transition from Franklin Medical School to the Keokuk College of Medicine of the State University of Iowa

FERDINAND J. SMITH, M.D., Milford

Dr. George W. Richards, who came from New York, arrived in St. Charles, Illinois, sometime during the year 1839.<sup>1</sup> He was a fine appearing man, having a superior education and evident ability. He was successful in the practice of his profession, and being ambitious to make the best use of his opportunities, desired to embark on an educational venture along medical lines. In the year 1842, he and other physicians organized the Franklin Medical College, a year before either Rush or Illinois Medical Colleges were organized.<sup>2</sup> The school opened with the following staff of teachers: Drs. G. W. Richards, professor of anatomy and physiology; John Thomas, professor of chemistry and pharmacy; Edward Mead, professor of materia medica, therapeutics and pathology; John Delamater, professor of surgery; Nichols Hard, professor of obstetrics and diseases of children; and Samuel Denton, professor of theory and practice of medicine.<sup>3</sup> The trustees of the institution were the following gentlemen: Messrs. H. Bancroft, W. Rounseville, L. Foots, J. S. Christian, A. Baird, L. Howard and Steven Jones.<sup>3</sup>

This faculty gave a course of lectures to a class of fifteen or twenty in the fall of 1842. The reputation of Richards together with the number of students attracted to the new school led to his being placed on the faculty of the La Porte, Indiana, Medical College in 1844. At the same time Dr. Moses Knapp, who had been connected with the Rush Medical College of Chicago, and Dr. Nichols Hard of the Franklin School were also put on the La Porte faculty. Among the students at the Franklin College were the following: Orpheus Everts, who married one of Richards' daughters;

Addison Danford; R. I. Thomas, also a son-in-law of Richards; Weeks, G. E. Bunker, two Hopkins brothers, Torrey, King, Jerome and John Rood.<sup>5</sup>

Dr. Weaver, in his recent history of the Franklin School, quotes from a letter written by Dr. Hard, telling of his arrival in St. Charles, and the delivery of his lectures in Franklin Medical College, and giving it as his opinion that "The prospects are good for a flourishing school. We shall have a charter from the legislature this winter and cannot appoint professors until then. The school will eventually be located in Chicago."<sup>6</sup> Dr. Weaver also quotes the following from the Western Lancet of January, 1843,<sup>7</sup> "The Medical College of St. Charles has been organized during the past year." He gives it as his opinion that the school had no charter, although there were those who claimed that it had, and also, it proved to him that it was operating before Rush or Illinois Medical Colleges had become established. Franklin College managed to give its degrees vicariously through the good offices of the La Porte College.<sup>4</sup>

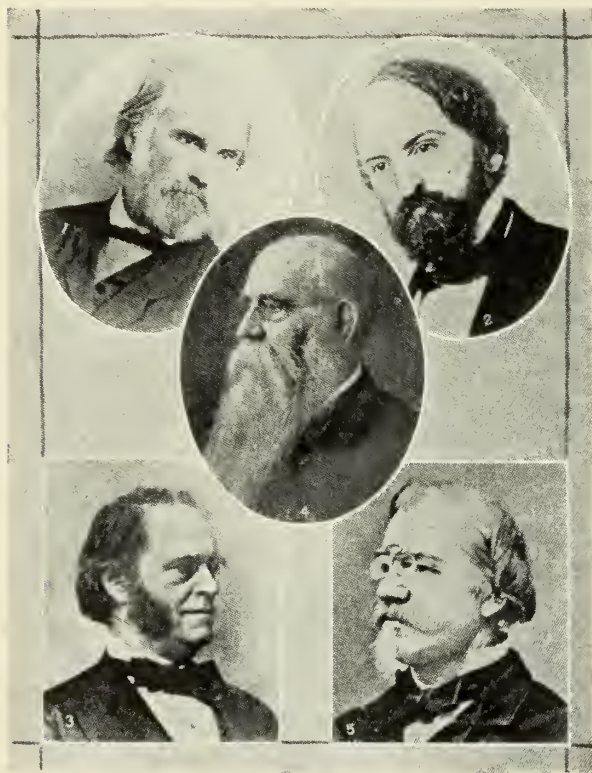
There was much jealousy between the various schools. Because he was unable to obtain from the state a charter for his school, he transferred his activities to the Rock Island School project. This medical college became established in 1848, and after one year removed to Davenport, Iowa.

Dr. A. A. Noyes, of Mason City, Iowa, who was graduated in the second class in 1850, after the college had become the College of Physicians and Surgeons of the Upper Mississippi and a department of the State University of Iowa, published an article in the Iowa Medical Journal of 1908 dealing with the Rock Island and Davenport Medical



schools. He was able to throw considerable light on events connected with the establishment of this school, which helped to clarify matters not previously known with certainty. It must be mentioned that Dr. Noyes was a school teacher in Madison, Wisconsin, during the winter of 1847, and for several years previously and also a frequent visitor in the office of Dr. Chandler B. Chapman, who was acting preceptor of a group of medical students, who were taking anatomy and medicine under his tutelage.

He states that in 1847 a bill was passed by the Wisconsin legislature, incorporating the Madison, Wisconsin Medical College, the incorporators being Drs. George W. Richards, Moses L. Knapp and Chandler P. Chapman, together with John L. Smith, Richard A. Maloney and Nathaniel W. Dean, laymen. The charter provided for a branch at Rock Island, which was opened in 1848 for its first medical course.<sup>8</sup>



1. Dr. Chandler P. Chapman    2. Dr. John F. Sanford  
3. Dr. Samuel G. Armor    4. Dr. Orpheus Everts  
5. Dr. A. S. Hudson

#### ROCK ISLAND MEDICAL COLLEGE 1848-1849

Because Wisconsin had so recently become a state, it was not difficult to obtain a charter. The action of the incorporators was in the nature of a "coup d'etat," enabling them to open their college in Illinois without needing to obtain a charter from the Illinois state legislature.

The school remained in Rock Island for only one year, and its faculty in this year consisted of the following members:

Anatomy: W. S. Pierce, M.D., Rock Island, Illinois.

Chemistry and Pharmacy: Calvin Goudy, Taylorville, Illinois.

Materia Medica and Therapeutics: Moses L. Knapp, Chicago, Illinois.

Physiology, Pathology, Medical Jurisprudence: S. G. Armor, Rockford, Illinois.

Surgery: Chandler B. Chapman, M.D., Madison, Wisconsin.

Obstetrics, Diseases of Women and Children: Dr. John F. Sanford, Farmington, Iowa.

Practice of Medicine: Dr. George W. Richards, St. Charles, Illinois.

Demonstrator of Anatomy: Orpheus Everts, M.D., Fond du Lac, Wisconsin.<sup>9</sup>

The following were graduated in 1849 by the Rock Island Medical College: G. S. Barrows, George A. Bunker, I. D. Crockwell, Willis A. Sanford, Adison Manson, John Dodson, I. V. Frasier, A. C. Grover, Obed Hasevey, Barclay Hinchback, Jesse Jones, E. S. Mowrey, E. R. Phillips, S. Powell, C. D. Pratt, William Richardson, D. C. Roundy, R. I. Thomas, Jacob Wadsworth, Eben Blakley and James Irvine.<sup>10</sup>

While the school was in session in Rock Island it is quite conceivable that some member of the faculty learned of the organization of the Iowa University in Iowa City. Dr. Sanford's residence was in Farmington, Iowa. He was also a member of the Senate Chamber of Iowa and a member of the Rock Island medical faculty. It is also reasonable to suppose that if the Rock Island School were made a department of the University of Iowa, its situation would be much more favorable than if it were to remain in Rock Island as a department of the Wisconsin University.

An examination of the Iowa State University archives shows that as early as 1848 a group of physicians, together with their legal representative, Mr. Stephen Whicher, B.L., met in Iowa City, and that Dr. Whicher and Dr. I. M. Vaughan met with the Board of Trustees of the University and memorialized the Board as follows, on December 7, 1848:

"Messrs. Whicher and Vaughan, a committee appointed on the part of a medical convention held in the capitol on a previous day, submitted a statement of the condition and wants of the Medical Faculty of the State of Iowa, and asked recognition by the Board, of a voluntary association of medical gentlemen, as the Medical Department of the University.

"The recognition asked for was granted and

the conditions under which the affiliation was made are named, and a committee appointed to report at an early date, with such recommendations and additional conditions as seemed advisable."

The report of the Committee on the Medical Department was made December 11, 1848, as follows:

"To the Board of Trustees of the State University of Iowa:

Your committee, to whom was referred a memorial, from an association of physicians and others on the subject of organizing a Medical Department of the University, respectfully report:

That in their opinion it will comport with the interest of the University and of our state generally to organize immediately the Medical Department of said University, and in view of such organization, they suggest for your adoption the following provisions and conditions:

1. There shall be attached to said department professorships in connection with the following branches of medical education and the persons whose names are appended appointed professors of the departments severally in connection with their names.

1st. Anatomy and Physiology, Dr. A. S. Hudson, Professor.

2nd. Chemistry and Pharmacy.

3rd. Principles and Practice of Surgery, Dr. I. M. Vaughan, Professor.

4th. Principles and Practice of Medicine, Dr. J. W. Flint, Professor.

5th. Materia Medica and General Pathology, Dr. S. S. Ransom, Professor.

6th. Obstetrics and Diseases of Women and Children, Dr. C. P. Hastings, Professor.

7th. Medical Jurisprudence, Stephen Whicher, B.L., Professor.

2. The faculty of said department shall consist of the several professors with a president of their own selection and said faculty shall be empowered (a majority of the trustees therein concurring) to appoint censors, to fill the vacancies now existing or which may exist hereafter in any of the chairs—to make such divisions and assignments of the several branches to professors who may hereafter be deemed expedient—to appoint a demonstrator of anatomy, and a janitor, to determine the prices of the tickets of the several professors and to establish and enforce such by-laws and regulations for the government of the faculty and the department during its sessions as may be deemed expedient.

3. The faculty shall defray any expenditures which may occur in their department and in no event shall the trustees of the University funds be made liable for any of the expenses of said department, and shall yearly, or oftener, if deemed

necessary by the trustees, report to the trustees on all matters incident to the general interests thereof.

4. The first course of lectures shall commence on the first Monday in November, 1849, and continue for a term of sixteen weeks."<sup>11</sup>

The provisions were adopted, and it will be noted that the Faculty of the Medical Department was given considerable discretion in the matter of appointing members to the faculty to replace those who, for one reason or another, decided to sever their connections with the College.

It is justifiable to assume that the purpose of the removal of the Rock Island College to Davenport, was so that it could comply with the conditions which were required by the Iowa State University, and which it would have to meet in order to become eligible. In a letter dated October 5, 1849, Dr. Dillon states that: "This morning I received the announcement of the Rock Island Medical College, and was glad to see the name of our mutual friend, Everts, as the professor of chemistry—vice Goudy, resigned or removed, confident as I am that we shall have almost an infinitely better course of instruction on this important branch of physic."<sup>12</sup>

In the early fall of 1849, the school was removed to Davenport, Iowa, and the lectures began the first Monday of November following. Immediately following the close of the winter session, the latter part of March, another course of lectures was given, ending June 13. According to Dr. Noyes, the same faculty which was in charge at Rock Island, was also functioning in Davenport. This, however, does not exactly agree with Dr. Dillon's statements, which mention changes that had been made. Dr. Dillon was graduated in March, whereas Dr. Noyes was graduated in June, which may account in part for their difference of opinion. It is true that Dr. Everts replaced Goudy, after the removal to Davenport, this being one of the changes mentioned by Dillon.

(To be continued next month)

## A Medical History of Winnebago County

HARRY FRENCH THOMPSON, M.D.  
Forest City

(Continued from last month)

Dr. Bryan had a very pleasing personality, by means of which he was able to acquire a very large practice. His death was due to injuries sustained June 7, 1907, when he fell into a cattle chute. He suffered a fracture of the pelvis and internal injuries, from which he made a temporary recovery, but his death, which occurred March 28, 1910, was caused by complications traceable directly to this accident.



August J. Peterson was born at Duluth, Minnesota, November 21, 1875, the son of Rev. Lars O. and Elise (Rasch) Pederson. He moved with his parents to Allamakee County, Iowa, in 1888, and in 1898 moved to Northwood, Iowa. His preliminary education was obtained in the schools of the different places in which his father served as pastor, and later he finished the academic course at St. Ansgar Academy, and was admitted to St. Olaf College at Northfield, Minnesota. He was graduated from the State University of Iowa in 1901 and began the practice of medicine in North Dakota in April of the same year, remaining there for about three years. He returned to Iowa and located at Fertile, Iowa, where he remained until September, 1915, when he moved to Forest City, where he is still engaged in general practice. He is a member of the Hancock-Winnebago Medical Society and the Iowa State Medical Society. Dr. Peterson was married two weeks after his graduation from the University of Iowa, to Nellie I. Larson, of Clear Lake, Iowa, and to this union have been born three children, two girls and one boy.

Otto A. Hansen, son of Andrew and Martha (Kjos) Hansen, was born at Blue Earth, Minnesota, March 24, 1865. He acquired a public school education in the local schools, and later attended the State Normal School at Mankato, Minnesota. He matriculated in the Iowa State University, and was graduated in 1896. He practiced three years before graduation, under the preceptorship of Dr. J. Herman, of Sioux City, Iowa, and located at Forest City, Iowa, March 12, 1896, and is still in practice there. Dr. Hansen has served several terms as coroner of Winnebago County, as health officer for Forest City, been a member of the city council and for several years was president of the Waldorf College Association. He has been a member of the State Hahnemann Medical Society and the American Institute of Homeopathy. In 1894 Dr. Hansen was united in marriage to Miss Augusta Donaldson who passed away in 1902. They were the parents of one daughter, Adela. In 1909 he married Miss Bertha Moe, of Thompson, Iowa. To this union have been born three children, Olive, Conklin, and Franklin.

Gisle M. Lee was born in Dane County, Wisconsin, the son of John E. J. and Martha (Venaass) Lee. He received his preliminary education in the common schools of Dane County, Wisconsin, later attended Luther College at Decorah, Iowa, and was graduated from Rush Medical College in 1893. He located at Thompson, Iowa, in 1894, and has been there ever since. At the time that Dr. Lee located in Thompson, the town

was in its infancy, having been founded but two years previous, and Dr. Lee was the first doctor to locate there. The surrounding country was just being settled, the settlers were few and far between, and living conditions were far from the best. Dr. Lee is a life member of the Hancock-Winnebago Medical Society, the Iowa State Medical Society, and the American Medical Association. He has held official positions in the county society, and has always been interested in matters that would have a tendency to better the conditions in his community. He has been coroner of Winnebago County several times, been mayor of Thompson, and served as secretary of the local school board for a number of years.

J. H. McKay, the son of N. B. and Myra Belle (Craft) McKay was born at Paris, Indiana, in 1867. The first twenty years of his life were spent on a farm during which he received his preliminary education in the common schools of Indiana. He taught four winter terms of country school, later taking up the study of medicine, and was graduated from the Kentucky School of Medicine in 1893. From January, 1894, to January, 1897, he practiced medicine at Buffalo Center, Iowa. He then took up the study of dentistry. After graduating in this line he practiced dentistry for a number of years at Forest City, later retiring and moving to California where he still lives.

J. E. Russ was born in Franklin County, Iowa, February 2, 1885. He received his preliminary education in the country schools and at Iowa Falls and his medical education at the University of Illinois, graduating June 4, 1907. For the past twenty-nine years, Dr. Russ has been practicing at Rake, Iowa, where he still lives. He has been a member of the Hancock-Winnebago Medical Society and the Iowa State Medical Society for a number of years.

Hans Edward Eiel, was born February 4, 1876, on his father's farm near Lake Mills, Iowa. He spent his boyhood days on the farm, and received his education in the country schools, and Lake Mills High School. Before taking up the study of medicine, he taught school during the winter months, working on the farm in the summer. He was graduated from the Keokuk Medical School in 1899, and was licensed to practice the same year. Dr. Eiel is a member of the Hancock-Winnebago Medical Society, and has held the offices of president and secretary several times. He has been a member of the city council of Buffalo Center for several years, was appointed postmaster by President Wilson, and is again postmaster, having been appointed by President Franklin D. Roosevelt. Dr. Eiel began the practice of medicine at Buffalo

Center in September, 1899, and is still practicing there. He was married in May, 1899, to Miss Sarah Skuttle, and they have three children. Two sons are physicians, both practicing at Osage, Iowa, and a daughter is the wife of L. E. Plummer, an attorney at Northwood, Iowa.

George F. Dolmage was born at Davenport, Iowa, June 4, 1879. He received his preliminary education in the schools of Davenport, and his pre-medical and medical education at the State University of Iowa. He was graduated from the University of Iowa in 1909. After serving two years on the staff of the University, he located at Bufalo Center, Iowa, where he is still engaged in practice. Dr. Dolmage is a member of the Hancock-Winnebago Medical Society and the Iowa State Medical Society.

Nels Olson was born in Bergen, Norway, February 23, 1889. He spent his youth there, and received his education in the Bergen schools. After coming to America, he attended Luther College at Decorah, Iowa, and the University of Iowa. He was graduated from the Medical Department of the University of Michigan in 1920 and practiced at Ann Arbor, Michigan, for two years before coming to Lake Mills, where he is now engaged in practice.

Peter A. Helgesen, the son of John and Ingebor (Dakken) Helgesen, was born in Iowa County, Wisconsin, August 29, 1868. His father located in Iowa County, Wisconsin, when he came to America, previous to the Civil War. When hostilities broke out, he enlisted in the Fifteenth Wisconsin Volunteer Infantry, and served through the entire war, more than four years. The son grew to manhood on the farm, and received his preliminary education in the district schools. Later he took a course in the Northwestern Business College at Madison, Wisconsin, and in 1887 entered Rush Medical College of Chicago. Subsequently, he became a student at the College of Physicians and Surgeons at Keokuk, and was graduated in March, 1891. Soon after graduation he entered the practice of his profession at Lake Mills, Iowa, where he is still following his chosen work. In addition to his medical degree, he is also a registered pharmacist, and at one time was engaged in the drug business in partnership with Albert Stensrud, later selling his interest in the store to his partner, and confining his efforts to the practice of medicine. Dr. Helgesen has been mayor of Lake Mills several times, and is now president of the Merchants State Bank at Lake Mills. He is also a member of the Hancock-Winnebago Medical Society and the Iowa State Medical Society. Dr. Helgesen seems to defy the ravages of Father

Time, for he is still engaged in practicing, and seems as vigorous as he ever was.

Martin M. Hage, the son of Knut M. and Martha (Bjoro) Hage, was born in Logan Township, Winnebago County, Iowa, July 7, 1885. He grew to manhood on his father's farm and acquired his early education in the country schools of the neighborhood, completing his high school years in Chicago, Illinois. He attended Waldorf College at Forest City, Iowa, for four years, and then entered Hahnemann Medical College at Chicago, from which he was graduated in May, 1912. He at once opened an office at Thompson, Iowa, and remained there until the fall of 1925 when he went to Lake Mills, Iowa, where he is still in active practice. He was married to Miss Leavie Silvers of Springfield, Illinois, in March, 1912. Their children are Maxine and twin boys, Robert and Dean. Dr. Hage's parents were among the early settlers of the county, coming from Voss, Norway, and settling west of Scarville in 1875, before that village was started. Dr. Hage is a member of the Iowa State Medical Society and the Hancock-Winnebago Medical Society. He is a charter member of the Lake Mills Lions Club, and has served on the school board of that community for the past eight years.

Clifford Ward Thomas was born at Ft. Madison, Iowa, May 11, 1902, and spent his entire life there, until entering the State University of Iowa. His preliminary education was received at the Ft. Madison schools, and he was graduated from the Medical Department of the State University of Iowa in 1927. After graduation, Dr. Thomas served as interne at the University Hospital, and was a member of the staff for four years. He became associated with Dr. Thomas J. Irish, at Forest City in July, 1931, which association still continues. Dr. Thomas' practice is along lines of internal medicine and pediatrics. He is a member of the Hancock-Winnebago Medical Society and the Iowa State Medical Society, and was elected as a member of the Iowa Clinical Medical Society in May, 1936.

P. H. Vesterborg was born September 16, 1860, on Lolland Island, Denmark, where he received his early education. He left the island when about eighteen years of age to enter military service on the mainland. He left Denmark for the United States in 1885, where he studied pharmacy in Chicago and worked as a pharmacist in that city until 1889 when he entered Rush Medical College from which he was graduated in 1892. He practiced in Chicago until 1898 when he moved to Forest City, Iowa. He is a life member of the Hancock-Winnebago Medical Society of which he was president, and is a Fellow of the American



Medical Association. In 1893 he was married to Miss Minnie Nelson of Albert Lea, Minnesota. They have one daughter, now Mrs. J. E. Brooker.

Thomas Judson Irish was born at Forest City, Iowa, February 4, 1897, the son of Harry R. and Alice (Pierce) Irish. His preliminary education was obtained at the Forest City schools, and Waldorf College. He was graduated from the State University of Iowa in 1921. He is a member of Nu Sigma Nu, and Alpha Omega Alpha fraternities, and was elected to the American College of Surgeons in 1929. After finishing his internship at the University Hospital in Iowa City, he became associated with his father in the management



of the Irish and Irish Hospital in Forest City. After the death of his father, he continued the hospital alone until July, 1931, when Dr. Clifford W. Thomas joined him. In 1934 he built the private hospital in Forest City, which was first occupied in August of that year. Dr. Irish is a member of the Hancock-Winnebago Medical Society and the Iowa State Medical Society, and specializes in surgery and obstetrics.

Edgar Thomas Lucast was born in Ashbourne, Derbyshire, England, July 27, 1868. His parents were Edward and Mary Norton Lucast. He was christened in the church in which Thomas Moore wrote his "Evening Bells" and he sang in the vested choir of that church. He was graduated from the art course of St. Thomas College in England and followed painting as a career, later taking up medicine and surgery in England. He then came to Milwaukee and entered the Physicians and Surgeons Medical College, since combined with Marquette College. He was graduated on March 29, 1898. His great-uncle was knighted by royalty and the sword presented on this occasion is in the possession of his brother, Edward Lucast, as he bore the name of his late knighted uncle. The family coat of arms bore the motto, "Look Well to the End," a motto to which Dr. Lucast dedicated his life. He came to Forest City, Iowa, in the year 1912. During the World War he served in the home service as captain at Fort

Revere, Boston; Fort Riley, Kansas; and Camp Custer, Michigan. He was elected first commander of the Forest City Legion Post. Dr. Lucast died April 15, 1931, and is buried at the Oakland Cemetery, Forest City, Iowa.

Harry French Thompson was born at McGregor, Iowa, September 30, 1869, the son of Jasper and Clara (King) Thompson. He attended the common schools of Forest City, and was graduated from Rush Medical College, May 23, 1894. He practiced at Goodell, Iowa, from June, 1894, to March, 1896, and at Rock Rapids, Iowa, until April 28, 1898, when he enlisted as a private in Company B, First South Dakota Infantry, United States Volunteers. With this regiment he served as acting assistant surgeon, at Cavite and Manilla, Philippine Islands. He was commissioned first lieutenant and assistant surgeon on March 23, 1899, and was discharged as such at San Francisco, California, on October 5, 1899. He practiced at Buffalo Center, Iowa, from January, 1900, to October, 1907, when he moved to Forest City, Iowa, where he is still engaged in general practice. He was married April 3, 1895, to Katherine Gabriella Richardson who died March 1, 1907. On April 10, 1910, he married Louise Taylor, at Denver, Colorado. Dr. Thompson is a member of Nu Sigma Nu, and a life member of the Hancock-Winnebago and Iowa State Medical Societies.

There were a number of other physicians who practiced in Winnebago County for a short time, a few months or a year or two. They left little if any impression on the local community and their contributions to medical history, if any, were made in other fields. This completes "A Medical History of Winnebago County," as of May 1, 1936. It is, and of necessity must be, a biography of the men who practiced here. No claims are made as to its absolute veracity. Data were obtained from every source available. Some of it came from those who knew the men in the earlier days; some from relatives now living; still other data were acquired from historical works in the public and private libraries. An effort has been made to have it as nearly correct as possible, with the primary object of collecting as much information as possible, before it was too late, and getting it into a concise form, for the benefit of future generations.

#### CORRECTIONS

Dr. Gilbert G. Herm was born in 1869 instead of 1889.

Dr. John H. P. Jones came to America in 1853 instead of 1852.

Dr. P. C. Jones died in Kansas City about 1900 instead of 1890.

# THE JOURNAL BOOK SHELF

## BOOKS RECEIVED

**A DIABETIC MANUAL**—By Edward L. Bortz, M.D., associate professor of medicine, Graduate School of Medicine, University of Pennsylvania. Illustrated. F. A. Davis Company, Philadelphia, 1936.

**ADULT EDUCATION**—By Lyman Bryson, professor of education, Teachers College, Columbia University, New York. American Book Company, Cincinnati, 1936.

**ARTHRITIS AND RHEUMATIC DISEASE**—By Maurice F. Lautman, M.D., consultant to the U. S. Public Health Service Clinic. McGraw-Hill Book Company, 330 West 42nd Street, New York, 1936. Price, \$2.00.

**AN INTRODUCTION TO MATERIA MEDICA AND PHARMACOLOGY**—By Hugh Alister McGuigan, M.D., professor of materia medica, pharmacology and therapeutics, University of Illinois, College of Medicine, Chicago. With 71 text illustrations and 18 colored plates. C. V. Mosby Company, St. Louis, 1936. Price, \$2.75.

**CHEMICAL PROCEDURES FOR CLINICAL LABORATORIES**—By Marjorie R. Mattice, A.B., Sc.M., assistant professor of clinical pathology, New York Postgraduate Medical School of Columbia University, New York. Lea and Febiger, Philadelphia, 1936. Price, \$6.50.

**FUNDAMENTALS OF HUMAN PHYSIOLOGY**—By the late J. J. R. Macleod, M.D., D.Sc., F.R.S., late regius professor of physiology, University of Aberdeen, Scotland, and R. J. Seymour, M.D., professor of physiology, Ohio State University. Fourth edition, C. V. Mosby Company, St. Louis, 1936. Price, \$2.50.

**INTERNATIONAL CLINICS**, Volume III, Forty-sixth Series—Edited by Louis Hamman, M.D., visiting physician, Johns Hopkins Hospital, Baltimore. J. B. Lippincott Company, Philadelphia and London, 1936.

**MICROBIOLOGY AND PATHOLOGY FOR NURSES**—By Charles F. Carter, M.D., Director of Carter's Clinical Laboratory, Dallas, Texas. With 138 text illustrations and 14 colored plates. C. V. Mosby Company, St. Louis, 1936. Price, \$3.00.

**PRINCIPLES OF CHEMISTRY**—By Joseph H. Roe, Ph.D., professor of biochemistry, School of Medicine, George Washington University. Fourth edition. C. V. Mosby Company, St. Louis, 1936. Price, \$2.75.

**SOCIAL ASPECTS OF THE BANANA INDUSTRY**—By Charles David Kepner, Jr., Ph.D., Columbia University Press, New York, 1936.

**A TEXTBOOK OF NEURO-ANATOMY**—By Albert Kuntz, Ph.D., M.D., professor of micro-anatomy, St. Louis University School of Medicine, St. Louis. Second edition enlarged and revised. Lea & Febiger, Philadelphia, 1936. Price, \$6.00.

**A TEXTBOOK OF PATHOLOGY**—By W. G. MacCallum, professor of pathology and bacteriology, Johns Hopkins University, Baltimore. Sixth edition, 1277 pages with 697 illustrations. W. B. Saunders Company, Philadelphia and London, 1936. Price, \$10.00.

**TISSUE IMMUNITY**—By Reuben L. Kahn, M.S., D.Sc., University of Michigan, Ann Arbor, Michigan. Charles C. Thomas, Springfield, Illinois, 1936. Price, \$7.50.

## BOOK REVIEWS

### THE INTERNATIONAL MEDICAL ANNUAL

Edited by H. Letheby Tidy, M.D., and A. Rendle Short, M.D. Fifty-fourth Year. William Wood and Company, Baltimore, 1936. Price, \$6.00.

No physician can find the time and opportunity for the reading required to keep acquainted with all the newer developments in all branches of medical science. Only a few physicians are privileged to familiarize themselves with the current literature in a limited specialty. For these reasons many efforts have been made to epitomize medical progress so that the busy physician may obtain the most pertinent facts of this review with the minimum expenditure of effort. Most epitomes are meritorious, since they are undertaken with a thoughtful purpose in mind and carried on by specialists in the subjects covered.

Outstandingly thorough and authoritative in the broad field of general medical science is the International Medical Annual under able editorship and reflecting the collaboration of a group of well recognized authorities. The Annual is planned with subjects presented in alphabetical sequence, each subject reviewing the most significant recent literature in the particular field. A condensed but helpful bibliography follows each discussion, and well executed drawings and photographs are generously employed in further illuminating the text. Serving as a cross reference, a complete general index is appended, which should make the subject matter readily accessible for reference purposes.

### FAILURE OF THE CIRCULATION

By Tinsley Randolph Harrison, M.D., associate professor of medicine, Vanderbilt University School of Medicine, Nashville. The Williams and Wilkins Company, 1935. Price, \$4.50.

In order properly to review a monograph it becomes necessary to possess an adequate measuring rod for its proper evaluation. This reviewer is of the opinion that the following fine points are of paramount importance in estimating the value of any volume:

1. The handling of the literature.
2. The presentation of the problem peculiar to the subject of the monograph.
3. The amount of original endeavor in solving these problems.
4. The execution of the original work.
5. The author's point of view and how his conclusions are elucidated for the reader's benefit.

If such a measuring rod is applied to Harrison's treatise on Failure of the Circulation, the result will be an astonishingly high score for this monograph. Not only is the author familiar with the present day cardiac literature, but he displays remarkable ability in separating the kernels from the chaff. Instead of making a few philosophic remarks about the various unsolved problems inherent in his subject, he has designed and carried out numerous well planned experiments for the solution of his problems. The book fairly teems with original work of this kind and the results obtained from them. The author dis-



plays to an astoundingly small degree the usual fatherly blindness toward his own experimental results. In addition to this, he has carried his ideas and his results into the crucible of clinical experience and has studied patients with heart failure for years in the clinic.

Finally he has presented the results of his study, his labors, and his observations in a well illustrated, carefully and lucidly written volume, which deals with the various phases of cardiac failure under the novel headings of hypokinetic, hyperkinetic, and dyskinetic syndromes. The reviewer knows of no volume which presents the complete discussion of circulatory failure in such a masterly fashion.

D. J. G.

### NEUROLOGICAL SURGERY

By Loyal Davis, M.D., professor of surgery, Northwestern University Medical School. Lea and Febiger, Philadelphia, 1936. Price, \$6.00.

This book is written for the general practitioner, the interne, and the medical student, and distinctly illustrates the progress made in neurologic surgery since 1900. Anatomy, physiology and pathology of the brain and nervous system are presented in a clear, understandable manner, devoid of impractical theory. Head injuries, brain tumor, lesions of the spinal cord and peripheral nerves are considered from the diagnostic and therapeutic angles in a manner that should eliminate the skepticism which is associated with attempts to correct these disorders in a carefully considered operation. The newer concepts of the physiology of pain and its relief by surgery of the autonomic system are discussed frankly with a tendency to discourage hasty and unwarranted procedures. Thus Davis makes an eloquent plea for a more tolerant view of neurologic surgery, and though purposely lacking in details of operative technic this volume should meet with the hearty approval of every neurologic surgeon.

W.D.A.

### MINOR SURGERY

By Frederick Christopher, M.D., associate professor of surgery, Northwestern University Medical School, Chicago. Third edition, reset, with 1030 pages and 709 illustrations. W. B. Saunders Company, Philadelphia. Price, \$10.00.

This third edition has been required because of the marked development which has occurred in the science of medicine during the last few years. The work follows its original form by discussing accidents and injuries in general and then taking up in succeeding chapters the particular injuries encountered in various localities of the body and injuries which, because of their location, require special consideration.

Any volume of this sort may be criticized because of the scope of work considered under this heading. However, the author of this volume has exhibited careful discretion in the subject matter covered and,

while conditions are presented and discussed which require more than office equipment and facility, the larger and more serious surgical procedures have been omitted. The volume will prove useful to the medical student, the hospital interne, the physician during his early years of practice, and the industrial surgeon. The volume is well illustrated with numerous original cuts and drawings.

### THE 1935 YEAR BOOK OF GENERAL THERAPEUTICS

Edited by Bernard Fantus, M.D., professor of materia medica, pharmacology and therapeutics, University of Illinois College of Medicine. The Year Book Publishers, Chicago, 1936. Price, \$2.25.

The advances in therapy during 1935 are carefully reflected in the material subjected to review by the discriminating author of this volume. Following the plan of previous years the author introduces his subject by consideration of general therapeutic technic, which should be of immediate value to every physician. In later chapters he discusses not only the recent advances in drug therapy, but also other methods of therapy, including the newer biologicals. The closing sections of the book are devoted to non-pharmaceutical therapeutics where mechanical agents, hydrotherapy, thermic agents and the various therapeutic methods of applying electricity are fully reviewed.

His discussion of the various agents employed in local and general anesthesia is particularly interesting and instructive. The volume is a valuable contribution to modern therapeutic literature.

### INTERNATIONAL CLINICS—VOLUME II, FORTY-SIXTH SERIES

Edited by Louis Hamman, M.D., visiting physician, Johns Hopkins University, Baltimore. J. B. Lippincott Company, Philadelphia and London, 1936.

One of the most interesting surgical clinics presented in this volume deals with glomol tumors, a group of small benign vascular tumors characterized clinically by paroxysms of pain. Good results are reported following surgical removal of the interesting neoplasm. The often ignored subject of diet in the treatment of heart disease impresses us as one of the most timely of the clinics in the section on medicine. The authors point out that a carefully regulated and maintained diet is almost as valuable as the use of digitalis in congestive heart failure. A carefully detailed program of diet management is presented. In the section reflecting the recent progress in obstetrics and pediatrics, the clinic presenting the subject of asphyxia neonatorum is perhaps the most significant.

The three clinics cited are selected from a group of fourteen clinics, all presented because of their timeliness and interest to the general practitioner and specialist. Practicability and thoroughness continue to characterize the essays presented in this work.

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### RECENT ADVANCES IN THE DIAGNOSIS AND TREATMENT OF VULVOVAGINAL DISCHARGES (BLOODLESS)\*

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With the advent of new diagnostic and therapeutic procedures controversies often arise, especially if directions are inadequate or the contraindications and dangers have not been properly tabulated. Certainly at times considerable quandary must prevail when several methods of treatment are recommended for a given disease or when various diagnostic aids have been suggested for certain clinical entities. These dilemmas result from several possibilities, viz.:

1. By premature reports and by incorrectly controlled studies.
2. By misinterpretation of the accumulated data.
3. Through enthusiasm to present something even though a complete solution to the problem at hand is lacking.
4. By sales methods of commercial institutions, etc.

There are numerous fields in which such confusion may exist. Vulvovaginal discharge is one and this is probably the most frequent symptom encountered in gynecology. It is caused by a large number of conditions (see Table I), but infectious states constitute one important group. All of the other conditions may be grouped under the non-infectious heading, yet in these, infections may occur secondarily. Allergy and sensitizations are not particularly common but may become more so when the information in this direction is more complete. Eczema and eczematoid conditions are infrequent. Injuries are moderately common and are very likely to have secondary bacterial invasion. The subdivisions are chemical, thermal,

irradiational, and mechanical. Neoplasms both benign and malignant from nearly all parts of the reproductive system can be associated with a non-bloody discharge at some time. Trophic disturbances less commonly produce discharge.

The infectious group consists of the venereal diseases, yeast-like mycosis, "nonspecific" infections of the urethral, vulval, vaginal, cervical uterine and adnexal structures, puerperal uterine infections, senile vaginitis, trichomoniasis, and finally the rare infections. The rarer infections

TABLE I  
CAUSES OF VULVOVAGINAL DISCHARGE (BLOODLESS)

Infections and Infestations (Primarily) Chancroid Gonorrhea Granuloma inguinale Lymphogranuloma inguinale Mycosis (Yeast-like) "Nonspecific" Vulval, vaginal Urethral, cervical Uterine, adnexal Puerperal uterine Senile vaginitis Syphilis Trichomoniasis Tuberculosis Miscellaneous Diphtheria Emphysema Gas bacillus Metazoa Mycosis (Other) Protozoa (Other) Tetanus Typhoid Other organism	Non-infections (Primarily) Allergy and sensitization Eczema and eczematoid states Injury Chemical and thermal From therapy From contraceptive preparations Irradiational Mechanical Foreign body Garments and pads Masturbation Scratching Neoplasms Benign (All types) Malignant (All types) Trophic disturbances Leukoplakia and kraurosis Miscellaneous Congestion (Pelvic) Hypersecretion Retained secundines Uncleanliness, etc.
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and infestations are tuberculosis, diphtheria, emphysema, gas bacillus, metazoa, other mycoses, other protozoa, tetanus, typhoid, etc.

Discharges may be absent in a large number of both the infectious and non-infectious types. Moreover, a bloody discharge may be observed in some of the conditions enumerated in both groups. Bloody discharge is an extremely important symptom in obstetrics and gynecology but time and space do not permit further discussion. Leukorrhea, a term so commonly used by patients, connotes a bloodless discharge but does not modify further. Hence serous, purulent or mucoid, thick or thin, white, clear, yellowish or otherwise, homogeneous or heterogeneous, odorless, or offensive,

\*Presented before the Dubuque County Medical Society, February 11, 1936.



or bubbly, flaky, or otherwise, are some of the descriptive terms employed.

A complete review of the literature is not attempted here but if the reader is interested in obtaining more reading material, he may get it through the references given here. Recent advances in diagnosis and/or treatment of vulvo-vaginal discharges are limited practically to special infections: gonorrhea, trichomoniasis, mycosis, "nonspecific infections," senile vaginitis, and lymphogranuloma inguinale. Syphilis is eliminated from this report since it includes too broad a scope. For the same reason gonorrhea will be discussed briefly.

A further point of interest to the physician and also to the patient is the duration and expense of treatment in effecting a cure. Many patients cannot afford to have a large number of treatments by the physician. Therefore, any procedure that will enable the patient better to afford a complete course of treatment should net better results. The success of any treatment is measured in its ability to free the patient from all symptoms, to restore her to her original health and to cure the disease process.

Special attention is given below to the following conditions: gonorrhea, trichomoniasis, "nonspecific" infections, yeast and yeast-like mycoses, lymphogranuloma inguinale, chancroid, and granu-

loma inguinale. These are discussed particularly because proposed or recently accepted diagnostic and therapeutic procedures are available. (See Tables II and III.)

GONORRHEA

Recent trends in the diagnosis of gonorrhea include cultures, complement fixation, antigen preparations, etc. The incidence of positive cultures in skilled hands is slightly higher than smears. However, the culture media must be fresh, very exactly made and delicately buffered, and its temperature carefully controlled from the time of inoculation throughout the period of observation. So far these culture methods are better suited for places having an adequate technical and laboratory staff. Perhaps ultimately cultures can be developed for general use. Even though complement fixations and antigenic tests are in the process of evaluation, some investigators advocate their use in adnexal infections (Blatt et al, Corbus and O'Connor, Cumming and Burhans, Pelouze, Barringer, and others). In general the smear and culture methods are the simplest and the former is perhaps the most reliable for all except those who are prepared to use cultures under ideal conditions. The smear should be made by bacteriologic loop, Adair spoon, or applicator without cotton. The material may be spread directly upon the slide or diluted in a drop of tap water. It is the custom at the Max Epstein Clinic, The University of Chicago Clinics, to use one slide for urethral and cervical smears. The urethral material is at the distal end while the cervical material is next to the label. The urethra should be expressed in all cases when obtaining material. The vaginal and vulval discharges of the adult reveal the gonococcus less often than other sources. In all suspicious cases repeat smears should be taken. A cure should not be pronounced until three consecutive smears taken from the urethra and cervix and other accessible infected areas fail to reveal the organism, and all clinical evidence has vanished. At least forty-eight hours or longer should elapse between each smear study. It is desirable to have one smear immediately following a menstrual period. Treatments should be continued, even during pregnancy, though the disease appears cured, until one month from term, unless its discontinuance is indicated by complications. After delivery smears should be taken from the urethra and cervix, since recurrences are common. In the immature female the diagnosis is made in the same manner as in the older patient.

The treatment in the child is local cleanliness and general body improvement. These children

TABLE II  
SPECIAL DIAGNOSTIC AIDS

Disease	Smear	Culture	Histo- pathology	Other aids
Gonorrhea	+	+		Complement fixation and antigen tests.
Trichomoniasis	+	+		Moist drop or hanging drop
"Nonspecific"	+	+		
Senile vaginitis	+	+	+	
Mycosis	+	+		
Syphilis				Dark field. Serologic tests
Chancroid	+	+	+	Ito-reenstierna test
Granuloma inguinale	+	+	+	
Lymphogranuloma inguinale				Frei test
Tuberculosis	+	+	+	Animal inoculation
Miscellaneous group	+	+	+	

TABLE III  
NEWER THERAPEUTIC APPROACHES  
(Complementing or Supplementing Other Therapy)

Disease	Remove focus	Hydroscopics and hypertonics	Other aids
Gonorrhea			
Adult	+	+	Heat induction. Filtrate
Child	+	+	Heat induction?. Hormone. Filtrate
Trichomoniasis	+	+	Restore carbohydrate balance
Senile Vaginitis	+	+	Restore carbohydrate balance. Hormone
"Nonspecific"	+	+	Restore carbohydrate balance
Mycosis			Element iodine. Violet dyes
Lymphogranuloma inguinale			Frei antigen. Fuadin. "Antiserum"?
Chancroid Sinuses			Menciere's solution

should be separated from others because the disease spreads very easily among children. Mild hydroscolics, such as glycerine, may be used as a vehicle for conveying some relatively mild anti-septic. Brown, Soule and Kleine have advocated the use of one per cent pyridium ointment to be applied into the vagina through a small catheter. The following morning a cleansing douche of plain water, or better yet a three to six per cent salt solution (two to four tablespoonfuls of table salt to a quart of water), may be used. The urethra may be treated with argyrol instillation or some adequate substitute if small urethral suppositories are not available. Proctitis is common. It can be the focus for reinfection. Proctitis can be treated by using a plain water enema or a three per cent salt solution and the insertion of argyrol or neosilvol (five to ten per cent) suppositories.

Lewis, Miller, Goldberg et al., and others have recommended the use of estrogenic preparation hypodermically. This acts by producing more of an adult type of vaginal epithelium, thus permitting the vagina to heal. This will give a good result except when the cervix and urethra are infected. This estrogenic hormone has no influence upon the course of urethral and cervical infections. A recommended routine consists of hypodermic injections of 100 rat units, two to three times a week, and daily insertions of small vaginal suppositories. It usually requires from 1,000 to 10,000 rat units. Unfortunately this does not cure all cases.

In the adult the disease tends to run a course which varies considerably from the course in childhood. Local and general rest is the ideal treatment for the adult. All traumatic and injurious procedures should be avoided. An adequate diet with forced fluids is indicated; regular sleep and regular habits are to be urged. The patient should be especially quiet just preceding, during and just after the menstrual period. Sexual intercourse, sexual excitement, and all spices, alcoholic beverages, etc., are to be eliminated. Douches or instrumentation may carry the infection from the urethra to the cervix. When douches are employed they should be used for heat and cleansing purposes. At least four tablespoonfuls of salt, and better, twelve to sixteen to the quart are helpful. This hypertonic action tends to protect the vaginal epithelium. Herrold recommends the use of anti-septics locally, but there is no chemical or preparation now available that has been proved to penetrate to the depths of the glands of the urethra and cervix. This is the site that must be cleared as the surface organisms can be eradicated. Douches do

not empty the glands except by hydroscopic and hypertonic action which is unlikely.

The most important agent in treating chronic infections of the urethra and cervix and of the tubes is heat. The urethral and cervical glands can be cauterized. The urethra must be anesthetized while linear cauterization in the cervix is nearly painless when properly done. Attempts at local heat induction by douches, diathermy or endothermy have been tried. Recently, the Elliot machine has been popularized. The principle is that of heat induction and it is perhaps no better than other methods if properly controlled. Desjardins, et al., Bierman, and Horowitz have employed general body hyperpyrexia in gonorrheal arthritis and salpingitis, but this is too radical for the lower genital tract infections. This hyperpyrexia is not without dangers, as it is necessary to elevate the body temperature to 106 or 107 degrees for four to six hours. The intention is to attenuate or kill the gonococcus by temperatures not lethal to body tissues. With the diathermy, endothermy or Elliot machines, or hot douches, one tries to elevate the temperatures of the local tissue to 110 to 115 degrees. Pelouze's immunologic attempts and Corbus-Ferry filtrate are still unsettled procedures. These may prove to be valuable. Pelouze states that his procedure is good only in the acute and subacute infections and is of no value in mixed infections. During the acute stage all instrumentation is contraindicated. Local applications of silver preparations or dyes may be made to the urethra and cervix but the use of glycerine as a vehicle is more important than its ingredient.

Rectal gonorrhea in adults is much more frequent than commonly supposed. In cases of resistance or reinfection or exacerbation the rectum should be studied for evidence of this infection. If the patient develops rectal symptoms, infection of this site must be determined.

Trichomonas and mycotic infections may be associated with gonorrhea.

#### TRICHOMONIASIS

The clinical entity of vaginal trichomoniasis is well recognized but considerable controversy exists as to the exact etiologic agent. Hesseltine, Hibbert, Allen et al., Rosenthal et al., Gellhorn, Goodall and others have contributed to the literature. In the severe cases, there is a moderate to profuse discharge, usually bubbly and associated with considerable vulval irritation. The vulva may be injected and edematous. At times there is only a moderate vaginitis, but it is usually marked. The walls are reddened and appear stippled with



petechial-like areas. There is usually associated infection of the urethra, cervix, etc. The disease is seldom observed in the immature female.

The discharge contains a very large number of pus cells, very few epithelial cells, and a bacterial flora made up of cocci, gram positive and negative, perhaps some bacilli, but very few or none of the vaginal bacilli. Flagellates will be found about the size of pus cells or larger. Upon these organisms are flagella, presumably four at the anterior end and one at the posterior. The movement of the flagella is typical. The presence of these organisms means that an abnormal bacterial flora is present, and it also indicates that the glycogen-like substance in the cells of the vaginal epithelium is somewhat depleted.

Probably with the exception of gonorrhea and syphilis no other female genital infection has had so many different preparations and chemicals used therapeutically. Practically all of the germicides and many protozoacides have been tried. Acids and alkalies, plain water and hypertonic solutions have been tried. It is well established by several workers (Adair and Hesseltine, Cruickshank, etc.) that the bacterial and cellular flora is directly related to the glycogen-like content in the vaginal epithelium. Cruickshank and others have shown that the acidity of the vagina is related to the bacterial flora. With this knowledge an approach in treatment has been attempted by the restoration of the normal biologic state. The use of astringents (as alum), hydroscolics (as glycerine) hypertonics (as 10 to 25 per cent salt solution) douche, etc., epithelial coagulants and precipitates (salicylic acid) and acid replacements (pyroligneous and lactic) all have some merit. Antiseptics as such produce results in some cases. However, the aim is to bring about a normal cellular flora, and thus induce a normal bacterial flora which in turn will produce the sharp acidity of the normal vagina of the childbearing period.

It has been found that glucose (in powder and tablet form) will give cures but it also favors the development of a mycosis. Subsequently lactose was found to give equally good results without favoring a mycosis. Citric acid has been added up to five per cent content by weight. The idea is to favor an increased vaginal acidity by some compound which would not be particularly bactericidal or bacteriostatic. The routine is to place one tablespoonful of the powdered mixture (95 per cent lactic and five per cent citric acid) into the vagina after it has been gently wiped dry. The patient is to insert two two gram tablets of this mixture each evening upon retiring. If in the acute state these tablets and powder irritate, plain lactose with-

out citric acid may be used. If the tablets tend to accumulate in the vagina the patient should decrease the number to one a night. She is urged to discontinue all douches, except for a very infrequent simple cleansing douche (two to four tablespoonfuls salt to a quart of water). This preparation tends to produce a watery discharge of a serous nature. The patient should return in one week. The same office treatment is again given and at this time any sites of focal infection as the urethra, cervix, etc., should be appropriately treated. Cauterization of the cervix may be done and then followed by this carbohydrate treatment. Cauterization of the cervix should not be done within one week of a period, and should not be too extensive. Office visits need not be oftener than once every two or three weeks if there are no focal infections to treat. The amount of treatment depends upon the patient's response. Where the patient appears cured clinically then moist preparations or hanging drops are to be made and examined. The patient should not be discharged as cured until she has gone through two menstrual periods without recurrence in the absence of treatment.

Sexual intercourse should be avoided during treatment. Since the exact source of this disease is still in debate the patient should be instructed not to contaminate the vulva by oral or rectal contents. Sexual partners may be carriers and when there are recurrences or when improvement fails these partners should have an examination of the prostatic secretion. The treatment of prostatitis is an urologic problem. The use of arsenic compounds now being advertised by several pharmaceutical houses may not be as efficacious as one is led to believe. The use of stovarsol in kaolin and sodium bicarbonate (Gellhorn) is no better than kaolin and sodium bicarbonate alone in our hands. At the present time we are investigating other preparations, such as carbarsone suppositories and devegan tablets. The latter is a carbohydrate containing an arsenical compound. The carbohydrate will give favorable results but further studies are necessary to show whether paroxyl (the arsenical substance) has any particular value. The carbarsone suppositories are dispensed in a gelatin and glycerine vehicle. The exact influence of this vehicle may likewise be questioned.

#### "NONSPECIFIC INFECTIONS"

"Nonspecific infections" include a group of infections of the urethra, vulva, vagina, cervix, uterus and adnexa. These are presumably caused by some of the streptococcic, pneumococcic and

staphylococcic, and colon bacilli strains. The streptococcic strains are relatively common infections and are observed fairly regularly in trichomoniasis. It may involve the urethra and even the bladder. The vulval and vaginal infections are likely to occur as secondary invaders and may persist long after the primary agent has disappeared. Cervical infections are common. Maryan has shown that many chronic infections of the cervix are due to a streptococcus of the enterococcus type. Infections of the uterus and adnexa may be caused by many bacteria, and are often associated with discharge. Infections of the tube and ovary may or may not be associated with lower genital tract infections and only infrequently cause discharge from the vagina. The discharge may result from drainage through the uterus, but this is most exceptional. However, these infections may cause general pelvic congestions and thus produce vaginal discharge. The diagnosis is made by elimination of all specific infections through the appropriate tests. The treatment of the urethra and vulva are by the usual procedures. The vagina may be treated by the same means as trichomoniasis. The cervical, uterine and adnexal infections are treated by the same old appropriate treatments and by the same means as gonorrheal infections.

#### SENILE VAGINITIS

This condition develops only in those who have gone through the menopause. Actually it is an infection of the epithelium and subepithelium. The specific bacteria have not been identified, but it appears that perhaps more than one type of organism may be responsible. After the menopause the epithelium of the vagina becomes thinner by a decrease in the size and the number of the cells. Once the inflammation has started and has injured or broken through the epithelium, a subepithelial inflammation develops. These inflammations are usually subacute or chronic. With an intradermal or subdermal inflammation the epithelium is less likely to heal. The vagina is chronically inflamed, the walls are inelastic and atrophic, and the epithelium is still lower and absent in places. The surface bleeds easily. The vaginal smears reveal a Type II or III flora with numerous pus cells. There may or may not be an associated trichomoniasis, since the clinical entities of trichomoniasis and senile vaginitis are so similar.

Very recently two new therapeutic procedures have been avocated. Davis has been able to convert the vaginal epithelium of these senile patients into an active reproductive phase type by using an estrogenic hormone. Cures have been accom-

plished after treatment for two to four months by hypodermic injection and vaginal suppositories containing the estrogenic hormone. One must use 100 rat units two to three times weekly, hypodermically; and 75 rat units in daily vaginal suppositories. Adair and Hesseltine have accomplished the same result by using 95 per cent lactose and five per cent citric acid powder in the office and one to two gram pills daily at home (same as for trichomoniasis). The normal vaginal bacteria and cellular flora returns to normal and the epithelium and subepithelium become healthy. The hormone therapy is more expensive and requires more frequent office visits, but otherwise the courses appear to be about parallel. Foci of infection in the bowels, on instruments, clothing and in sexual partners should be excluded and eliminated. Recurrences or reinfections occur, but by proper instruction these may be prevented.

#### YEAST AND YEAST-LIKE MYCOSIS

Mycoses of the vulva and vagina are practically always due to the yeast-like organisms, yet very rarely other fungi are encountered. This infection is more common in pregnancy and in diabetic females than in others according to Plass, Hesseltine and Borts. It may be limited principally to the vulva as in diabetic patients. No reports have been made of it in female children. The urine containing an abnormal amount of glucose favors the growth of organisms, but there is no concrete evidence indicating that it is irritating. In females free from these yeast-like organisms either a liquid or dry glucose produces no symptoms when used repeatedly on the vulva and vagina. (Hesseltine). The vulvitis in diabetes is due to some agent other than the glycosuria, and the reports of Plass, et al., and Hesseltine indicate that it probably is principally a mycosis but may be caused by bacterial invasion. These organisms are composed of two parts, mycelia and conidia. The mycelia are usually branched, are long fiber-like structures, and may slightly resemble a cotton fiber. The buds or conidia, although varying considerably in size, are usually the size of a pus cell. The vulva is reddened, injected, hyperemic and congested. The surface may have a slight grayish cast due to dying epidermis. Excoriations may be noted which have resulted from scratching. Pruritis is the paramount symptom and it is usually more extreme than in other infections. The pruritis of kraurosis usually does not surpass this intensity. It may become so persistent and severe that patients have little sleep. The urge to scratch is almost maddening for some patients. It is especially marked at night and patients may awaken themselves scratching. The infection may in-



volve the vagina alone or both the vulva and vagina. In the vagina there is usually a caseous material or thrush-like patches. The walls are injected and any itching sensation is localized to the vestibule or the vulva. In severe cases the inflammation may extend outward as far as the thigh and even encircle the anus posteriorly. The early clinical appearance of the vulva may suggest kraurosis or atrophic dermatitis. The diagnosis is made by finding the fungi in direct smear (very gram positive) or in culture (on Sabouraud's media).

The treatment is limited to two or three general types (Hesseltine and Hopkins). When patients can have three or more office visits a week, a one per cent aqueous crystal violet or gentian violet solution applied to the vagina and vulva will ordinarily give prompt relief and cures. The violet dyes are the most efficient of the dyes, but the dyes stain clothing very badly and permanently. An occasional patient is irritated by this chemical. If douches have to be used one-half per cent lysol or 1:1000 or 1:2000 bichloride of mercury may be employed. A better preparation appears to be element iodine as found in one-half to one-fourth strength Lugol's solution, or one-fourth to one-fifth strength tincture of iodine (aqueous dilution). The vagina can be painted with these. At the present time other iodine preparations are being evaluated. Iodex ointment gives relief in vulval mycosis occasionally. It appears that possibly an iodine preparation will soon be available whereby the patient may treat herself at home between visits to the physician's office.

Treatment should be continued until a cure is accomplished. Obviously the diabetes should also be treated. In some pregnant patients the mycosis will persist even with treatment until delivery occurs. Within twenty-four to forty-eight hours after delivery all symptoms are lost, but occasionally return in two to six weeks. In the diabetic patient the symptoms are often related at least in a degree to the amount of glycosuria.

Babies born of fungous infected mothers are likely to develop thrush. Many pregnant patients and others too carry these germs, but with little or no symptoms, yet their babies may be infected. The babies can be treated successfully with a one per cent crystal or gentian violet, once daily for the average case. This is perhaps the most successful procedure in oral thrush. The sporadic case of thrush should be charged to the mother and doctor while the epidemics are probably the fault of the nurse.

Infrequently husbands get an infection of the phallus.

#### LYMPHOGRANULOMA INGUINALE

Lymphogranuloma inguinale was recently recognized as a disease. Cole, Tamura, Strauss and Howard have contributed much to this subject. It is caused by a virus spread usually by sexual intercourse. The infection tends to remain in the pelvis but in rare instances produces an encephalitis. The lesion first appears on the surface as a herpetic, ulcerative, chancrelike or urethritic lesion. In ten to twenty-eight days the lymph nodes become involved. In women the inguinal glands are not involved as often as the deeper pelvic lymphatics. The inguinal glands may be involved unilaterally or bilaterally, swell uniformly and are firm and tender. These tend to fuse with the skin and become bluish. If suppuration continues drainage occurs spontaneously. When the deeper lymphatics are involved the inflammation spreads to the peri-vaginal and periurethral plexus. The process of swelling, induration and fibrosis continues with a gradual progressive constriction occurring. This leads at times to complete rectal and sigmoidal obstruction. Dilatation of the rectum may be necessary. There may be unusual destruction of the pelvic tissues. The ligneous consistency suggests a malignancy or advanced cellulitis. The diagnosis is confirmed by obtaining a positive Frei test. This test is made by using 0.1 of a cubic centimeter of Frei antigen intradermally. If in twenty-four to forty-eight hours a reddened papule, 0.5 of a centimeter in diameter develops, it is positive. The antigen is prepared by aspirating the suppurative material from an unruptured node which is diluted two to five times with isotonic saline. It is then heated at 60 degrees centigrade for two hours one day and one hour on the second day; tested for sterility, and if sterile is ready to use.

The early lesions may be confused with chancre, syphilis, and pyogenic infections. It may be even more destructive than tuberculosis. It is primarily a lymphatic infection in contrast with the epidermal infection of granuloma inguinale. To date all treatments have given inconsistent results. The unbroken glands should be protected. Dilation of the rectum and colostomies may have to be done to relieve the obstruction. Fuadin and tartar emetic may be used as for granuloma inguinale. X-ray is valueless, but radiant heat, ultraviolet rays and foreign and homogeneous protein have sometimes given good results. The Frei antigen may be used intravenously or intramuscularly. It should be started with 0.2 of a cubic centimeter and gradually increased to two cubic centimeters. Tamura is attempting to produce a vaccine and/or an antiserum for therapy.

## CHANCROID

Chancroid is caused by the Ducrey bacillus. The older diagnostic and therapeutic methods still stand for chancroid and the differential diagnosis is just as important, especially for syphilis as it has ever been. Now that lymphogranuloma has been identified, and its significance understood, it is another infection to consider in the differential diagnosis. At the present time an intradermal antigenic test which is known as Ito-Reenstierna test is being evaluated by various workers (Cole and Levin and others). This material is obtained from an unbroken bubo, diluted and the organisms killed as in lymphogranuloma inguinale. The test is made by injecting 0.1 of a cubic centimeter of the material intradermally and reading in twenty-four to forty-eight hours for reaction. The value of this test needs to be sufficiently confirmed. When chronic sinuses persist, injections of Menciére's solution have brought about cures. The Public Health Institute of Chicago aspirates the softened nodules and injects a mild antiseptic with gratifying results.

## GRANULOMA INGUINALE

The etiologic agent is the Donovan bacillus or bodies. The method to diagnose granuloma inguinale remains unchanged, and the therapy is practically the same except that another antimony salt, Fouadin or Fuadin, has been used with equally good or perhaps slightly better results. The amount of tartar emetic (potassium antimony tartrate) for a single dose is dissolved in ten cubic centimeters of physiologic saline solution and injected intravenously. On the first treatment 0.04 of a gram is used and this amount is increased by 0.01 of a gram on each subsequent treatment until 0.1 of a gram is reached. Intravenous injections should be given daily or every other day. If evidence of overdosage appears the amount should be decreased and then increased gradually later. Fuadin is used in seven per cent solution intramuscularly; 1.5 cubic centimeters on the first day; 3.5 cubic centimeters on the second day; and 5.0 cubic centimeters on the third day. Thereafter on alternate or odd days five cubic centimeters are used until a total of forty cubic centimeters have been administered. The lesion is not cured until the organisms disappear and the clinical condition has well disappeared.

## OTHER LOWER GENITAL TRACT INFECTIONS

In general the diagnostic and therapeutic procedures remain unchanged for the infectious conditions which have not been mentioned above.

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SOME OBSERVATIONS ON A THIRD ANTIGEN OF *BACILLUS TYPHOSUS*\*

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The last two or three years have witnessed remarkable activity in the field of typhoid serology. In June, 1935, Kauffmann<sup>7</sup> summarized the most recent developments. The crux of his summary centers about a new concept of the antigenic structure of *Bacillus typhosus*, namely, the presence of a third antigen which seems to be related to "O" agglutinability and virulence of the organism. At the time the present studies were begun (August, 1935), it was noted that numerous experiments had been carried out which lent strong support to the validity of this new concept, though little if any work had been done to correlate the new findings with actual cases of typhoid fever. Since nearly all the work reported had been done on only a few strains of typhoid organisms isolated in Europe and the Far East, it was thought that further studies on different strains isolated in this country would be interesting and perhaps valuable. It must be emphasized that this presentation is intended to be only a preliminary report concerning some of the fundamental aspects of the newer developments in the serology of typhoid fever. The present paper deals specifically with, first, the constancy of the presence of the third antigen in strains reported to be inagglutinable; second, the relationship of the third antigen to virulence in experimental animals; and third, some observations on a recently isolated inagglutinable strain of *Bacillus typhosus*.

Before proceeding with the presentation of the experimental work it would be well to make a brief chronologic review of the literature which leads up to and includes recent studies on the Vi antigen. For forty years, the Widal reaction<sup>1</sup> has been used as an aid to the laboratory diagnosis of typhoid fever. Coupled with clinical evidence, a positive Widal reaction has always been considered as specific for the disease. Felix and Pitt<sup>4</sup> in 1924 showed that *Bacillus typhosus* possesses two distinct antigens which are responsible for the production of specific immune bodies when injected parenterally into appropriate animals. The one antigen they referred to as the "O" antigen and is responsible for the production of "O" agglutinins. This antigen is represented in the body of the bacterium and is thermostable. The second antigen they referred to as the "H" antigen and represents the antigenic factor contained in the flagella of the organism. This antigen which is thermolabile, also

produces specific antibodies referred to as "H" agglutinins. Thus, motile organisms contain both "H" and "O" antigens while the non-motile forms possess predominantly the "O" antigen. The specific agglutinins can be demonstrated in the laboratory by observing the differences in the type of clumps formed when organisms and immune sera are mixed. Agglutination with "H" antibodies at 52 to 55 degrees, centigrade, gives rapidly forming (within four hours), large flaky clumps that are easily disintegrated on shaking. Agglutination with "O" antibodies results in fine granular clumps that are broken up with difficulty and form after eighteen to twenty-four hours at 52 to 55 degrees, centigrade. In 1926<sup>4</sup>, these same workers related the presence of "O" agglutinins in the sera of typhoid patients to the bactericidal action of the serum and stated that the presence of "H" agglutinins exerted no influence on this particular property.

It is a not infrequent experience in bacteriologic laboratories to encounter culturally typical typhoid organisms which are not agglutinated by "O" antiserum when first isolated, though after repeated subcultures they finally become agglutinable. No explanation of this phenomenon was forthcoming until 1934 when Felix and Pitt<sup>5</sup> published their interpretation based on this reasoning: Since "O" antibodies in natural or artificial immune sera are responsible for the bactericidal action of the serum, there is an inverse relationship between "O" agglutination and resistance to the action of the serum. More resistant strains, therefore, would not be acted upon by the serum and consequently would not be agglutinated, nor would there be any bactericidal action of the serum for these organisms. Thus they reason, an index to the resistance of the organism to the serum, as regards agglutination and bactericidal properties, is to be found in "O" inagglutinability; and that resistance of the organism to agglutination and bactericidal action is a measure of virulence. They conclude finally that virulence is at its peak when "O" agglutinability is entirely depressed and vice versa.

Later in that same year, these authors asserted that such virulent strains of typhoid are not only "O" inagglutinable, but in addition possess a third antigen associated with the bacterial ectoplasm which is responsible for both the virulence of the organism and its inagglutinability. This antigen they call the Vi (virulence) antigen. In June, 1935, Kauffmann contributed some confirmatory evidence for Felix and Pitt's work, and at that time recommended to the Health Section of the League of Nations, that in the future, Vi antisera be used routinely in the serologic diagnosis of typhoid

\*Thesis which won the 1936 Baldrige Memorial Prize. The author is a Junior medical student at the State University of Iowa, College of Medicine. His investigations were carried out in the laboratories of the Department of Hygiene, Preventive Medicine and Bacteriology.

fever, going so far as to recommend that an international laboratory be established for dispensing cultures and media to diagnostic laboratories throughout the world. Such a plan, he suggests, would enable "O" inagglutinable strains to be diagnosed accurately and would obviate the difficulties encountered owing to variation of different cultures of *Bacillus typhosus*. A third recommendation was that the organisms containing Vi antigen should be included in the preparation of typhoid vaccines.

EXPERIMENTAL

The experimental work described herein, involved three distinct procedures: first, to obtain cultures of non-motile or pure "O" organisms and subsequently to prepare pure "O" antiserum; second, to obtain "O" inagglutinable typhoid cultures containing the Vi antigen and to produce Vi antiserum; and third, to make a comparison of "O" inagglutinable with "O" agglutinable organisms bacteriologically, serologically, and regarding their virulence for susceptible animals.

1. The Preparation of Pure "O" Serum.

The strain recommended by Felix and Pitt for production of "O" serum is the non-motile O-901 strain and has been used in experimental typhoid serology for years both in this country and in Europe. A culture of this organism was obtained from the State Hygienic Laboratory, Iowa City, Iowa. As regards morphology and cultural properties, the organism was found to be an aerobic, gram negative, non-motile, non-spore bearing short rod, which fermented with acid alone, dextrose, maltose, mannite and xylose. It produced hydrogen sulphide and reduced nitrates to nitrites. Indol was formed. Grossly the colonies were found to be of the typical smooth type on Endo's and cosin-methylene-blue media. White rabbits were immunized with this organism, the antigen being prepared exactly as described by Kauffmann<sup>7</sup>. Two rabbits were then given a series of subcutaneous and intravenous injections of the heat-killed O-901 antigen starting August 29, 1935, and terminating September 28, 1935. Immune serum was obtained by bleeding the animals via cardiac puncture five days after the last injection. The sera of these two animals are referred to as pure "O" antisera.

2. The Preparation of Vi Antiserum and Detection of the Vi Antigen.

Failing to secure inagglutinable strains of *Bacillus typhosus* from any of a number of human cases of this disease, a request for such strains was sent to Dr. Kauffmann of Copenhagen and Dr. Felix of London. Dr. Kauffmann's cultures were received on November 30, 1935. These organisms,

designated as Type 2 and Watson strains, were immediately transplanted to soft ascitic agar and the cultures, after twenty-four hours incubation at 37 degrees centigrade, agglutinated with pure "O" antiserum. The organisms were found to be "O" agglutinable to as high a titer as the homologous organism. (See Table I). Feeling that perhaps these strains had only temporarily lost

TABLE I  
AGGLUTINATION OF FIRST SUBCULTURE OF TYPE 2 AND WATSON STRAINS RECEIVED FROM KAUFFMANN USING PURE "O" ANTISERUM NO. 126.  
Serum No. 126 diluted 1 to

Strain	100	200	400	800	1600	3200	6400	12,800	25,600	Saline Control
Watson	+	+	+	+	+	+	+	—	—	—
Type 2	+	+	+	+	+	+	+	+	—	—
O-901	+	+	+	+	+	+	+	+	—	—

their inagglutinability, they were therefore grown for six transfers on soft moist ascitic agar which is claimed by Kauffmann to restore "O" inagglutinability. After subculture on soft ascitic agar, the strains were tested again with pure "O" antiserum and again they agglutinated to as high titers as the control homologous organism (O-901) used to produce the serum. (See Table II).

TABLE II  
"O" AGGLUTINATION OF TYPE 2 AND WATSON STRAINS AFTER TRANSFER ON SOFT ASCITIC AGAR.  
Serum No. 126 diluted 1 to

Strain	100	200	400	800	1600	3200	6400	12,800	25,600	Saline Control
Kauffmann's Type 2	+	+	+	+	+	+	+	+	—	—
Kauffmann's Watson	+	+	+	+	+	+	+	—	—	—
Felix's Type 2	+	+	+	+	+	+	+	—	—	—
Felix's Watson	+	+	+	+	+	+	—	—	—	—
O-901	+	+	+	+	+	+	+	—	—	—

Failure to restore inagglutinability by this method prompted the use of a second procedure which Kauffmann claims will also develop the inagglutinable phenomenon; namely, growing the organisms in the presence of complement. Six consecutive transplants of Kauffmann's Type 2 and Watson strains were made every twenty-four hours on 15 per cent fresh guinea pig serum agar.\* After the sixth transplant, these strains were still found to be agglutinated by the "O" serum. (See Table III).

As a third and final attempt to restore their asserted inagglutinability, Kauffmann's Vi strains were then inoculated intraperitoneally into three series of white mice. The first series of mice

\* Note: Growing the organisms in such high concentrations of serum brought up the possibility of introducing an S-R change of form which would alter the antigenic complex of the organism. Frequent tests for such changes showed that throughout the growth on serum agar, the smooth form was retained.



died in twenty-four hours and the recovered organisms were then inoculated into a second series of mice. After each series, the organisms were

TABLE III  
AGGLUTINATION OF KAUFFMANN'S TYPE 2 AND WATSON WITH PURE "O" ANTISERUM AFTER GROWING ON GUINEA PIG SERUM MEDIUM.

Serum diluted 1 to										Saline Control
Strain	100	200	400	800	1600	3200	6400	12,800	25,600	
Type 2	+	+	+	+	+	+	+	+	+	—
Watson	+	+	+	+	+	+	+	+	+	—
O-901	+	+	+	+	+	+	+	+	+	—

recovered and tested for agglutinability with "O" serum, but at no time was the inagglutinable phenomenon observed. (See Table IV.) It is interesting to note that with each successive mouse passage, the virulence of the organisms was ap-

TABLE IV  
AGGLUTINATION OF KAUFFMANN'S TYPE 2 AND WATSON WITH PURE "O" ANTISERUM AFTER PASSAGE THROUGH SIX MICE.

Serum diluted 1 to										Saline Control
Strain	100	200	400	800	1600	3200	6400	12,800	25,600	
Type 2	+	+	+	+	+	+	+	+	+	—
Watson	+	+	+	+	+	+	+	+	+	—

parently increased as evidenced by the decrease in killing time, with approximately equal doses in all three mouse passages.

To date, we have been unable to transform Type 2 and Watson strains from the agglutinable to the "O" inagglutinable form by any of the methods outlined by Kauffmann or Felix which were designed by these men to restore inagglutinability. Because Kauffmann and Felix both claim that "O" inagglutinability implies the presence of the Vi antigen and that likewise "O" agglutinability implies the relative absence of this antigen, we might be justified, from the results of the above experiments, in assuming that Type 2 and Watson strains sent to us as containing the Vi factor are lacking in it. However, it was thought possible that these cultures, while perhaps not containing Vi antigen in sufficient quantity to inhibit "O" agglutination, might contain the antigen in quantities detectable by serologic methods. Accordingly the following experiment was performed. Briefly, the experiment consisted of immunizing white rabbits with cultures of formalin treated Type 2 and Watson strains of *Bacillus typhosus* (formalin not destroying the Vi antigen), absorbing out "H" and "O" agglutinins with living cultures of O-901 and H-901 and then agglutinating these absorbed sera with their homologous organisms. If a third antigen was present in Type 2 and Watson strains,

these organisms should be agglutinated by the absorbed sera.

The results of this experiment are interesting though at present somewhat difficult of interpretation. It was found that the antiserum produced by immunization with Type 2 and Watson organisms, after complete absorption of "H" and "O" agglutinins still contain agglutinins to a titer of 1:320, apparently common to Type 2 and Watson strains, but not common to H-901, O-901, or an "O" inagglutinable strain recently isolated from a case of typhoid fever. However, antiserum produced by immunizing a rabbit with Watson strain, after complete absorption of "H" and "O" agglutinins, showed no agglutination with any of the above mentioned strains. (Table V). Explana-

TABLE V  
AGGLUTINATION WITH PURE VI ANTISERUM.  
Serum 143 diluted 1 to:

Strain	40	80	160	320	640	1280	2560	5120	10,240	Saline Control
H-901	—	—	—	—	—	—	—	—	—	—
Kauffmann's Watson	+	+	+	+	—	—	—	—	—	—
Felix's Watson	+	+	+	+	—	—	—	—	—	—
Felix's Type 2	+	+	+	+	—	—	—	—	—	—
Kauffmann's Type 2	+	+	+	+	—	—	—	—	—	—
O-901	—	—	—	—	—	—	—	—	—	—
"O" inagglutinable	—	—	—	—	—	—	—	—	—	—

Serum 144										Saline Control
Strain	40	80	160	320	640	1280	2560	5120	10,240	
H-901	—	—	—	—	—	—	—	—	—	—
Kauffmann's Watson	—	—	—	—	—	—	—	—	—	—
Felix's Watson	—	—	—	—	—	—	—	—	—	—
Kauffmann's Type 2	—	—	—	—	—	—	—	—	—	—
Felix's Type 2	—	—	—	—	—	—	—	—	—	—
O-901	—	—	—	—	—	—	—	—	—	—
"O" inagglutinable	—	—	—	—	—	—	—	—	—	—

tion of the failure of the Watson antiserum to agglutinate any of these strains may lie in an inherent resistance of the individual animal used, to the production of antibodies, though this seems unlikely since the titer of "H" and "O" agglutinins was equally as good as that of the Type 2 antiserum. It is possible that we are dealing with the V-W change of form referred to by Kauffmann.<sup>7</sup> Further experiments are necessary before any rational explanation of this phenomenon can justly be offered.

If we accept for the moment, the theory that certain typhoid organisms possess a third antigen, the Vi antigen, then it seems fair to assume this experiment demonstrated that Type 2 and Watson strains possess this antigen and that H-901 and O-901 are lacking in it. In addition, the experiment has revealed another more significant point, namely, the absence of the Vi antigen in the recently isolated "O" inagglutinable strain. The patient from whom this organism was isolated (stool and blood clot culture) presented a typical clinical picture of typhoid fever. Culturally, the organism is typically *Bacillus typhosus*, being a gram negative, motile, non-spore bearing short rod that ferments dextrose, maltose, mannite and xylose with the production of acid, but no gas. It produces hydrogen sulphide and reduces nitrates to nitrites and forms indol. Colonies are the typical smooth type on Endo's medium. The significance of this observation will be referred to later in the presentation.

3. *Comparison of the Virulence of Type 2 and Watson Strains with O-901 and a Freshly Isolated "O" Inagglutinable Strain.*

Having demonstrated that Type 2 and Watson strains were not "O" inagglutinable even though we were able to show that a third antigen was present in these strains, the next logical step was to compare the virulence of these organisms with strains of accepted low virulence and with a strain that was definitely inagglutinable, and therefore according to Felix and Pitt, of high virulence. For this study, the following strains were used: Type 2, from Kauffmann; Type 2, from Felix; Watson, from Kauffmann; Watson, from Felix; O-901, from State Hygienic Laboratory; and the "O" inagglutinable strain recently isolated from an active case of typhoid fever. (This is the same one referred to in the previous paragraph.) All six of these strains were grown on soft ascitic fluid agar for eighteen hours, suspended in normal physiologic saline and so standardized (by plate count and McFarland nephelometer) that 0.5 cubic centimeters contained approximately 400 million organisms. Thirty-six white mice were used, making six groups of six mice each, each group being inoculated with a different culture. (The mice used for this experiment were all from the same stock and had been on the same diet for two weeks prior to the inoculations.) Inoculations of 0.5 cubic centimeters (400 million organisms) of the respective cultures were made intraperitoneally and hourly examinations were made for the number of surviving animals. From Table VI, several things are apparent. First, it is evident that there is no significant difference in virulence between Type 2 and Watson strains and the

TABLE VI  
SHOWING THE NUMBER OF ANIMALS DEAD OF TYPHOID AT THE DESIGNATED TIME INTERVALS AFTER INTRAPERITONEAL INOCULATION WITH 400,000,000 LIVING ORGANISMS.

Number of animals dead after the following hours:																								
Strain	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	36		
Kauffmann's Type 2	0	0	1	1	1	2	2	3	3	3	3	4	6											
Kauffmann's Watson	0	0	0	0	0	1	1	2	2	3	3	4	4	5	5	5	5	5	5	5	5	5	6	
Felix's Type 2	0	1	1	1	2	2	2	2	4	4	5	5	5	5	5	5	5	5	5	5	5	5	6	
Felix's Watson	0	0	0	1	1	3	3	4	5	6														
O-901	0	0	0	0	0	1	1	2	3	5	6													
"O" inagglutinable	0	0	0	0	1	1	1	2	2	3	3	3	4	5	5	5	5	5	5	5	5	5	6*	

\*Killed at 48 hours.

O-901 strain. Of even greater significance is the fact that the "O" inagglutinable strain is of even lower virulence than any of the strains tested.

DISCUSSION

The results of the experimental work set out in the preceding paragraphs have brought out several significant points regarding the fundamental nature of the Vi antigen which may influence future work done in the field of typhoid serology. First, after varied and repeated attempts, it has been impossible to demonstrate the phenomenon of "O" inagglutinability in strains sent as "O" inagglutinable and containing the Vi antigen. Considering that by serologic methods it was possible to demonstrate a third antigen, possibly the Vi antigen, the suggestion lends itself that the mere presence of Vi antigen does not inhibit "O" agglutination. Further, by comparing the virulence of Type 2 and Watson strains with O-901, a strain of accepted low virulence, no significant difference was found, from which we may infer that the presence of this third antigen is not related to the virulence of the organism. Rather, these observations suggest that virulence may be related to some other factor and not to the Vi antigen. These statements are supported by experimental work done with the recently isolated "O" inagglutinable strain. It will be recalled that no third antigen was detected by serologic tests and that the organism was no more resistant to immune serum than any of the strains tested. However, it was not more virulent than the other strains, as might be expected from its inagglutinability. In a personal communication Dr. Felix states that in his experience it is difficult to guarantee the maintenance of inagglutinability during the transportation of organisms. At most, then, if there is any relationship between "O" inagglutinability, the Vi antigen and virulence of the organism, it is certainly not a constant relationship and such a situation surely



calls for more work throughout the world before one can accept Dr. Kauffmann's recommendations concerning the establishment of an international laboratory for typhoid serology.

#### CONCLUSIONS

1. Evidence is presented of the existence of antigenic factors in *Bacillus typhosus* besides those of the accepted "O" and "H" groups. These factors are identical with the Vi antigen of Kauffmann.

2. The relationship between the presence or absence of Vi antigen and the virulence or "O" agglutinability of a strain of *Bacillus typhosus* has not been positively established.

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### ROCKY MOUNTAIN SPOTTED FEVER\*

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In 1933 we had first definite proof that Rocky Mountain spotted fever really occurred in Iowa. Since then sporadic cases have appeared in widely separated communities, until now we have record of about twenty patients. These cases have been varied in their clinical courses, ranging from the mild type, with no rash, to the severe type with profuse rash and intense nervous symptoms. The cases I wish to discuss cover two types of the disease—namely, the moderately severe and the protracted mild.

The moderately severe cases occurred in two brothers at practically the same time. The older boy, six years of age, became ill on August 7, 1934. He complained of being tired, was feverish, had loss of appetite, and a severe frontal headache. His temperature was 103 degrees, and continued so for four days, at which time his mother noticed peculiar spots on his face, arms and legs. Some were also found on the chest and abdomen. The most noticeable feature was slight edema of the face and flushing of the boy's skin. The spots resembled chickenpox in an early stage, except that fine striations radiated from the lesion. There

was conjunctival reddening with photophobia. The superficial glandular system was enlarged generally, with no tenderness. The muscles were painful to the touch. The boy had no nervous symptoms, which was odd in contrast to the history in many cases. On the seventh day of the illness the boy was taken to Iowa City, where further study was conducted. After this, the rash spread to some extent, involving the palms of hands and feet, to a moderate degree. Spotted fever was suspected, and the blood was agglutinated to *Proteus* X19 in dilution of 1:2560. No typhoid or paratyphoid agglutinins, nor tularemia, were found. Stool cultures for typhoid and allied organisms were negative. Blood cultures on three different occasions were negative. The patient's temperature maintained a fairly constant elevation, ranging between 102 and 103 degrees for four days, 102 for four days, gradually falling by lysis. Normal temperature was reached in twelve days with no complications following.

The history of the younger brother, four years of age, varied slightly, but followed a similar course. He became ill two days later than his brother, with a temperature of 103 degrees. He apparently was very uncomfortable with this fever and muscular tenderness, since he wished to have no one touch him. Two days following the initial fever he developed a rash that appeared on face, arms and legs. This rash was macular, evanescent in nature, fading as the patient's temperature dropped, reappearing as the temperature rose. He also had an erythematous patch on the left ear and cheek. This boy's rash was more blotchy than was his brother's, and the skin had a more pronounced flush. His rash developed practically the same characteristics. He entered the hospital at the same time as his brother, and his illness followed about the same course with no complications. His glandular system was enlarged and not tender. Agglutination to *Proteus* X19 in dilution of 1:2560 was positive. Fever dropped by lysis. Blood count and blood differentiation showed nothing distinctive. This boy, and also his brother, had negative Wassermann and Kahn tests. As in the case of the older boy, the younger brother had no nervous symptoms. As concerns the etiology, the wood tick was the vector. Two days prior to the onset, the mother had removed a wood tick from the father of the boys. The father and the boys slept in the same bed.

The third case, of the mild protracted type, was suspicious, but was never positively diagnosed either by agglutination or protective tests. The patient was a female, married, thirty years of age. She became ill on December 26, 1935. Because

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she was experiencing aching, she had diagnosed the condition as influenza. On December 28, following this two-day period of malaise and aching, she had a period of severe chilling, muscle aching and pain in the left elbow. Her temperature rose to 102 degrees. There was injection of the conjunctiva with photophobia, a slight cough, some swelling of the skin and a rash on the forehead, ankles, wrists, arms and legs. This rash, during its course, spread to the back, chest, palms of hands and soles of the feet. A lesion developed on the conjunctiva of the left eyelid and a few on the soft palate. The rash was subcuticular, hemorrhagic in appearance, and had many fine striations leading from several of the macules. No glandular or splenic tenderness was observed. On the second day the temperature dropped to 100 degrees, ranging in this vicinity for five or six days, and gradually falling by lysis. The rash started to fade on January 3, but some remained as bluish areas for three weeks on the palms, soles and around the ankles. On December 31 and January 1 the patient had experienced drowsiness, mental aberration and loss of location. Another complication was arthritis of the left elbow, right shoulder and right hip. Her recovery has been slow; she is still weak and has a secondary anemia.

The case, to me, was Rocky Mountain spotted fever, but the blood findings were not conclusive. Iowa City laboratories in the second week of the condition did not find positive agglutinins. They were negative for spotted fever, Malta fever, and the typhoid groups. In the third week blood was sent to the Rocky Mountain Laboratory at Hamilton, Montana, where Dr. Parker made both agglutination and protective tests. He found positive agglutination in 1:80 and partial in 1:160. This is held positive by some laboratories, but Dr. Parker classed it as a borderline case or as one of the other typhus-like diseases. He admitted that the history was fairly conclusive. He also ran protective tests on guinea pigs with negative results.

This resumé of cases brings us to the general discussion of Rocky Mountain spotted fever. The disease is defined as an acute disease, occurring in certain of the western states of the United States, conveyed by ticks, characterized by chills, fever, general pains and a macular rash becoming hemorrhagic. It is a disease of spring and fall, rarely occurring in winter months; is carried by various varieties of ticks from animal to animal and to man by accident. The burrowing animals seem to be the carriers of the virus. The virus, in turn, is spread by the bite of an infected tick that trans-

mits the disease through its salivary glands. Occasionally the spread is through the accidental crushing of an infected tick. The disease is most prevalent from March to June, the prevalence corresponding to seasonal abundance of ticks, as well as favorable environmental factors. In the west the *Dermacentor andersoni*, in the Pacific states the *Dermacentor occidentalis*, and in the south and east the *Dermacentor variabilis* carry the infection.

As to classification Rocky Mountain spotted fever formerly fell into two classes, the severe or Montana type, and the mild or Idaho type. More recently, however, the classification has been extended to include the following types: the malignant (Montana and Wyoming); intermediate (Colorado and Utah); and mild, which has been further subdivided into acute mild (Idaho and Oregon); protracted mild (Nevada); and, lastly, the mid-zone strain, or typhus-like eruption of the eastern and southeastern states. We see then that certain types are more prevalent in certain geographic areas. Cases in Iowa, however, have not held true to any type, since they have ranged from the mild to the severe forms. Our geographic location may line us for any of the types mentioned, and should be kept in mind when considering suspicious cases.

The incubation period varies from two to twelve days, the average being four to seven days. Certain factors influence the production of a virulent virus in a tick. The longer the tick feeds on a human, the more virulent the infection, since warm blood activates and accelerates the virus. Feeding of the tick on a succession of hosts also activates the virus. The incubation period seems to be shorter in the severe types of infection.

Following the incubation period, symptoms usually develop soon. The preliminary symptoms are malaise, aching and pains, and chilly sensations, proceeding to severe chilling of several hours' duration, or a dramatic chill followed by high fever, which in most instances is retained throughout the entire course. Coinciding with the temperature rise, there is usually headache, joint ache and muscular pain, and occasionally abdominal pain which is often mistaken for appendicitis. Nervous symptoms are to be expected at the onset in most patients, and this ranges from slight stupor to coma. Low delirium is common. Many cases have meningeal symptoms which lead to the diagnosis of meningitis. Muscular twitching is often seen. Fever in the moderately severe case runs a fairly even keel, with slight morning re-



missions. As the patient recovers, the temperature falls by lysis. A pseudocrisis occasionally occurs.

The mainstay of diagnosis lies in the cutaneous findings, the rash being the most constant and characteristic feature. This rash usually appears on the third to fourth day, and is described as being erythematous lenticular macules, at first slightly raised above the surface of the skin. Fine striations that follow skin lines will lead over the surface of the macule in many instances. This is the first evidence of the hemorrhagic nature of the condition. These macules tend to become petechial fairly early in the disease, and are decidedly so by the second week. In severe cases the rash may become confluent, or in the moderate case may appear only around the wrists. Later these petechiae may become purpuric and remain as purplish areas for many weeks after recovery. In most instances the order of eruption is distinctive. The wrist, ankles, arms and legs are first involved, then the limbs, and finally the back and chest. The face may be involved at any time. Lesions are occasionally found on the conjunctiva and in the mouth. The palms and feet sometimes have the eruption. The macules become necrotic in some patients, especially those with the more severe types of macular eruption. This does not occur in the eastern form, nor has any report been made of it in Iowa cases. The life cycle of the spots is about fourteen days.

The pulse helps to determine the prognosis; the faster the pulse, the graver the prognosis. Urinary findings are likely to be negative, although anuria sometimes occurs in the aged. In fact, the older the patient, the graver the prognosis. The blood picture is usually one of leukocytosis, which appears in many cases early, in others within the second week. The agglutination test to *Proteus* X19 should be slightly positive at the second week, and decidedly so in the first week of convalescence. At this time protective features, which will protect guinea pigs against the virus, have been produced in the patient's blood. This is called the protection test. In certain instances, with fairly definite clinical history, agglutinins have not been demonstrated in the blood, which further complicates the diagnosis. There is a possibility of two or more strains of the virus or one of the other typhus-like diseases. The mild case may not produce the immunity expected in the protection tests, or the strains of virus used in the guinea pigs are too virulent.

The atypical case may be confusing; consequently, with definite suspicion our only hope rests

with these tests. Since guinea pigs are highly susceptible to the infection of Rocky Mountain spotted fever, blood from an acutely ill patient injected into a guinea pig, commonly shows a diagnostic reaction. Here, again, the mild case may give no response, or blood that has undergone lysis will not produce this scrotal phenomenon. Any phenomena observed have to be taken with reservations, since interpretations are only fairly safe after a wide experience. Dr. Parker states that a considerable proportion of Rocky Mountain sera, even when taken at the most favorable time, do not cause agglutination in sufficiently high titer to be definitely diagnostic. Three samples of blood should be taken from each case. The first as soon as the nature of the condition is suspected, the second between the tenth and fifteenth days, and the third in the first week of convalescence. A positive test is indicated by an increasing agglutination titer. The protection tests are performed by using early convalescent serum injected into guinea pigs, with varying amounts of serum virus. This test is not always positive, but occasionally helps to differentiate Rocky Mountain spotted fever from other typhus-like infections.

Diagnosis has been made after death by histologic study of the skin, and occasionally a biopsy is done. The pathology is fairly definite in the specific lesion, being a peripheral endangitis with typical endothelial proliferation and medial necrosis. Rickettsia are best demonstrated in the endothelial leukocytes and in the media of blood vessels of the skin. The discussion so far has been concerned primarily with severe cases. Some patients have no rash, some die before a rash occurs, some have an atypical rash eruption. All these features tend to complicate the diagnosis. When we consider that the disease varies from the very mild to the very severe form, we realize that constant attention must be paid to all facilities for diagnosis.

In the differential diagnosis we must consider typhoid and allied diseases, cerebrospinal meningitis, especially the septicemic type, severe measles, typhus, smallpox, undulant fever, streptococcic septicemia, purpura and typhus-like spotted fever. Typhoid and paratyphoid may simulate the condition early, but fairly definite eruption and the absence of typhoid organisms in the stool should point to Rocky Mountain spotted fever. Cerebrospinal meningitis should have more definite nervous symptoms, but a spinal puncture should differentiate. This also applies to pneumococcic meningitis. Severe measles could be erroneously diagnosed early in the disease, but the respiratory

symptoms of measles are more pronounced, and the eruption would not conform to the standard description. Typhus is the most common source of error in areas where it is endemic. The history of tick bite, the more rapid onset and the course of development, the order of eruption spreading from limbs to body in contrast to typhus which spreads from body to limbs, and the more profuse and cyanotic rash, point to Rocky Mountain spotted fever. Both diseases agglutinate *Proteus* X19, and the final decision may lie in cross immunity tests. Smallpox is sometimes diagnosed, due to pain and aching and to the macule formation. With the development of the eruption, however, it should be easy to differentiate between them. Undulant fever is slow in its initial stage, does not have a rash, and, if so, only in a slight degree. The patient, when he first goes to the physician, has a positive agglutination for undulant fever, in most instances because of delay in seeking consultation. Streptococcic septicemia has a more septic course, the rash is usually hemorrhagic at the onset and more random in development. Purpura is definitely hemorrhagic at the onset, and there is a lessened clotting time. Typhus-like spotted fever has been described. This is typical spotted fever, without formations of agglutinations in the blood. If the clinical history is right, the diagnosis is left as Rocky Mountain spotted fever.

The treatment has been largely symptomatic, accompanied by relatively large doses of quinine administered either orally or intravenously. Various arsenical preparations have been used. In heavily infested districts prophylaxis by the use of vaccine has aided in preventing the disease.

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## SOME FACTORS IN THE MANAGEMENT OF THE FAILING HEART

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The remark was recently made by an eminent English physician that the major work of the cardiologist of today consists in the treatment of congestive failure. This remark was countered by an equally eminent American physician who stated that the greatest work of the cardiologist of today is the prevention of congestive failure. Too often in our smug self-satisfaction and conceit we familiarize ourselves with a series or classification of established changes in a particular system, and having studied the histopathology and accustomed ourselves to a certain syndrome we let this syndrome represent to us a disease entity. With too little thought of the degenerative changes and infections which have produced the syndrome constituting to us the disease entity, we proceed to cure the entity by the antidotes discovered through medical research or perchance stumbled onto during ages past. All too seldom do we recognize the state of dysfunction or dis-ease, or infection that is bringing about any certain series of established changes which ultimately awaken our slumbering consciousness to the fact that at last we have the classical syndrome and therefore a disease exists.

During the years of our youth while running, jumping, climbing trees and turning somersaults we develop a wonderful cardiac reserve. It is estimated that if we represent our cardiac potential as ten units our normal activities call for an output of only one-tenth of that cardiac potential. Not until the other nine-tenths reserve is exhausted do we have evidence of venous congestion; and not until dysfunction and disease have dissipated this reserve do we classify our patients as cardiac cases. It is true we do not see many of these patients in the initial stage; but many times we do not diagnose and properly treat them until we can pick out the particular syndrome of established changes brought about by functional disease and distress. All too often we can but bolster up and sustain for a brief time the failing heart.

It is maintained that one of the outstanding factors underlying the success of the clinic administration of medicine is that dysfunction is encountered in the pre-symptom stage, that is, before degenerative changes have seriously depleted the reserve tissue which nature has provided in each organ of the body. It is much easier to maintain good health than to cure ill health, and it is much easier to treat cardiac dysfunction than to cure a series of established changes which we are wont to term the entity, heart disease, if we would



recognize the patient as the entity to be treated and then as Williamson puts it "The disease is recognized as an abnormal state of dis-ease, in which the cells of the patient are laboring under influences which tend to bring their activities to a standstill."

#### PROPHYLAXIS

In the first place training decides the thresholds of ease and exhaustion. The heart grows and develops according to the demands put upon it in early life. Our function as physicians is to see that reserve force is not only built up but that it is thereafter preserved from unnecessary wastage. We must early endeavor to conserve and direct the cell life of the heart by prevention of excessive response in cell activity either to physiologic or pathologic stimuli. Insomnia and voluntary disregard for sleep create imbalance in the nervous control of the heart, and exaggerated responses out of all proportion to body needs may occur as in the simple examples of the wastefulness of effort shown in palpitation of the heart and tachycardia. The heart does not always act with reason. Why should a normal heart beat at a tremendous rate when some exciting news is heard? Why should a fibrillating heart beat at a hundred and twenty-five when sixty or seventy beats per minute would better accomplish the necessary work and at much less effort?

Both overactivity and underactivity of cells lead to atrophy and death. Anything that increases the pulse rate does so through the shortening of the diastole. As the blood is crowded out of the myocardium during the systole, and as the coronary vessels fill and nourish the myocardium during the diastole, it can readily be seen that any factor which causes a prolonged increase in heart rate does so at the expense of the myocardial circulation and if such rate be unduly sustained, a weakened myocardium must of necessity result. Disuse leads to atrophy. If we do not retain our capillary fields senility is upon us as we develop contraction of these fields. The adult who has serious valvular defects should be warned to live a life whose cell demand will be in proportion to the volume output of his particular heart. We often find a failing heart and elicit information which relates it etiologically to some infectious disease or to the presence of focal infection of long standing. Some day an enlightened public may say, "I will have this dead tooth or these diseased tonsils removed," or "I will go to bed and secure proper care during unavoidable infections so that I will not some day have heart disease because of my neglect."

We are now treating a man with auricular fibril-

lation and angina pectoris decubitus who admittedly worked for several days and nights on end at hard labor and when symptoms and signs of failure manifested themselves he still continued until utter collapse finally put an end to his activities. He is now a well built man in his forties with but one defect, a completely ruined heart; a superb and elegant chassis with a burned out motor, and the human motor cannot always be reconditioned. While we are educating the public to protect themselves against infectious diseases and to recognize early or possible evidence of cancer, let us also instill into the lay mind a wholesome respect for the human motor and its limitations, and encourage the laity to exercise the same diligence in avoiding overstrain that they would exercise in caring for their automobile.

#### EARLY SYMPTOMS

As has been stated, "The very essence of cardiovascular practice is recognition of early heart failure and discrimination between different grades of failure." We wish to distinguish two stages; first, the stage of waning reserve; and second, the stage of actual signs of circulatory embarrassment and breakdown. Symptoms result from faults in function. Instead of tuning our ears to the symphony of classical murmurs, many of which may have persisted for years without relation to function, let us consider first functional distress. A patient submits himself for examination. Two questions present themselves to us for solution; first, has the heart the capacity to do the work which is demanded of it; and second, what is the condition of the cardiac reserves. The first indication of cardiac failure may be an increased heart rate, and rate plus dynamic force are important factors in the study of the status of cardiac function. We have a patient recovering from an infectious disease. The rate is above normal. Is this due to some psychic or non-essential factor, to increased metabolism, or to loss of myocardial force and an effort to compensate for the latter? Sometimes observation of the sleeping rate will decide whether the myocardium is or is not at fault. Again the apnea test may render valuable assistance. It is claimed that psychic or emotional tachycardia can be recognized by having the patient hold his breath. This is best seen following expiration. By arresting breathing a temporary bradycardiac action is created which urgently stimulates the vagus, the accelerator action of the sympathetic nerves is cut out and the heart comes under vagal control. A slower pulse rate under these conditions is a favorable indication. Metabolism tests are often required in ruling out in-

creased metabolism as an essential factor in tachycardia.

Probably the first symptoms which a patient notes at the onset of cardiac failure are fatigue and a limitation of activity through breathlessness or increased breathlessness on usual exertion. The complete course from health to constant distress is usually associated with breathlessness from an inadequate supply of aerated blood to the head and neck. We need not resort to mechanical means of measuring vital capacity; in fact, no standard gives us information equal to that obtained by a careful history. If we can elicit the fact that a patient has more respiratory discomfort after retiring, that he now uses two pillows instead of one, that he becomes short of breath on climbing the stairs, or more short of breath than he formerly was on performing some ordinary task, then we have found available and pertinent criteria. We cannot measure one man's reserve by another man's capacity or by a universal standard. If a patient is unusually fatigued following slight exertion, we must think of lowered cardiac reserve, especially if the fatigue is promptly relieved by rest. If the fatigue is not relieved by rest, some non-cardiac factor, such as infection or toxemia must be considered.

#### SIGNS OF CONGESTIVE FAILURE

Next in order are the signs of congestive failure. Let us reiterate that nine-tenths of the cardiac reserve has been depleted before these signs appear. Not until the output at rest begins to decline do we have manifest signs of engorged veins from the blood collecting on the venous side. Fortunately still is the patient whose early signs of failure are recognized and whose activities are readjusted before more distressing conditions develop. The increased size of the heart is more important than the heart sounds. The patient who complains of epigastric distress with flatulence may be suffering from an early venous congestion of the liver. Percussion may elicit the earliest sign of such congestion. If the heart fails to transfer enough blood from the venous to the arterial side the blood collects in the veins and as they swell we have our first signs of circulatory failure. Direct measurement of venous pressure is not adaptable to general use. However, Lewis has described a simple bedside test, which is universally applicable. This method is based upon observation of the level at which the veins collapse. In the normal individual distention of the veins ends at a height representing atmospheric pressure almost at a level with the manubrium sterni. Veins in the relaxed hand will normally collapse if the hand is

lifted above the level of the manubrium sterni. Natural swelling of external jugular veins will extend one-third of the way to the jaw according to the tilt of the neck. The venous level rises to various heights in congestion. It may rise to the middle of the sternocleidomastoid muscle or if the congestion is great the jugular veins are engorged to higher and higher levels. Never are these veins filled in the normal unclothed person in the upright or standing position. Whenever pulsation can be seen in the superficial veins of the neck in the erect patient the veins are too full and the level of pulsation is indicative of the degree of congestion. In the presence of these signs neither close observation nor any great skill is required to diagnose the advanced stage of congestive failure.

#### PROGNOSIS

Our prognoses in cases of cardiac failure need be guarded at all times. Frequently about two and one-half years sees the close of the battle. Yet seldom do we see more spectacular responses than we encounter in some of these cases. I remember a patient whom I saw five years after the onset of failure. She then had extreme ascites, edema, venous congestion, passive congestion of lungs and auricular fibrillation. After vainly wracking our brains for means of relief we finally tapped the lower extremities, introduced a trocar into her abdomen and drained off about 13,000 cubic centimeters of fluid. We then advised several months of rest, and to our surprise the ascites and edema did not return for about seven years. Her final exitus was delayed until about fourteen and one-half years had elapsed from the onset of failure. Another patient who had heart disease of rheumatic origin was seen by us with the late Dr. Myers in 1927 and an effort to reestablish normal rhythm with quinidine failed at that time. Later she was relieved of extreme ascites on June 1, 1929, by paracentesis. Repeated paracenteses were done at intervals over a period of about two and one-half years, forty in all. From that time, December 24, 1931, until her death on May 1, 1934, no further tapplings were required. The faster the ventricular rate at the onset of failure the better is the prognosis. If failure has been induced by some infectious process which can be eliminated or by some unusual effort, the prognosis may be better than if it occurred after an usual effort. As a rule little is to be gained by repeated auscultations. A protodiastolic gallop rhythm signifies ventricular dilatation.

#### TREATMENT

In considering the treatment of the failing heart we would mention rest, drugs, diet, drainage



of excess fluids, and thyroidectomy. Of paramount importance is rest, both physical and mental. If venous congestion is evident this rest needs to be the more complete. At times morphine may be given without hesitation. Often one of the barbitol group will lessen the nervous tension and reduce cardiac load. The Lewis cardiac bed which can be converted into a chair permits the patient to change his position with little effort. Deep breathing exercises and passive exercises of the extremities are of value for those in whom venous congestion prohibits active exercise.

It is believed that the only feature in a cell open to influence by drugs is the velocity at which its specific function is executed, since the function of a cell is fixed. Thus velocity in vital activity is subject to change and this is the only variant feature in the living cell. In digitalis we have a notable example of an influence transmitted through a nerve path and affecting the rate of the activity of heart cells. In the purine derivatives and certain mercurial medicines we have drugs that increase the activity of the kidneys in eliminating excess fluid, which in the form of edema and ascites add an unwanted burden to the overtaxed circulation. Digitalis is our most potent and universally adaptable drug in the treatment of the failing heart. The urgency of the need gives the indication for the rapidity with which digitalization should be secured. Once secured the heart, which has previously failed, should thereafter have a maintenance dose of the drug, probably for life. Of the mercurial diuretics salyrgan seems most satisfactory and may be given intravenously or intraperitoneally in the ascitic cases, provided the patient is able to concentrate the urine. One or two cubic centimeters biweekly, will eliminate a great deal of fluid. The xanthine group also is very helpful in ridding the system of excess fluid.

There is no specific cardiac diet; wholesome food small in volume and high in calories is indicated. In those patients with excess fluid it may be well to leave the salt off the tray, but I do not think a miserable patient should be punished by an unlivable diet. Venesection is still advocated for the cardiac patient suffering from asthma, but is seldom used otherwise.

Of late considerable interest has been manifest in the brilliant results obtained by complete thyroidectomy in some cases of cardiac failure, both of the congestive and the anginal types. I recently saw a number of patients at the Beth Israel Hospital in Boston who had been operated upon by Dr. Blumgart. He contends that complete thyroidectomy with its lowered basal metabolic rate and reduced blood flow reduces the work of

the heart about thirty to forty per cent. In angina if a certain amount of work causes an attack, the attack may be prevented because of the lessened initial load. In congestive failure the heart has much more recuperative power because of a lessened initial load. I saw a man who had been down for about one and one-half years, was edematous and could not turn over without palpitation. Yet now, his congestive failure was no longer apparent, his edema was gone and after two and one-half years he was helping in research work, working from eight to ten hours a day. This operation has been done in twenty-six clinics. Of 250 operated there has been a mortality record of 6.8 per cent. Dr. Blumgart reported no mortality in the last 62 patients operated upon by him. His results are listed in the accompanying table.

	Congestive Failure	Angina of Effort
Satisfactory improvement	37%	36%
Definite improvement	31%	24%
Slight improvement	22%	20%
No improvement	10%	20%

#### CONCLUSIONS

1. We must give more attention to prophylaxis in heart disease.
2. We must not ignore functional disease while awaiting a definite, established syndrome of changes upon which to base a diagnosis and begin a too long delayed recovery program.
3. We must remember that patients with heart disease of long standing often live for some time despite our predictions of sudden and early death.

#### FRACTURES OF THE VERTEBRA\*

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Fractures of the vertebra are being seen with ever increasing frequency. This is due to the continued increasing popularity of the motor car. Formerly falls of slate in mines, being thrown from horses, and similar accidents, accounted for most of such derangements. Within the last few years, more fractures of the vertebrae have occurred than formerly, although industry and the accidents commonly resulting therefrom have decreased. The increased proportion of such injuries in motor car accidents is a direct result of the greater numbers and higher speed of the motor car. The mechanism of the car has improved

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proportionately with its capacity for speed, and accidents from failure of brakes, tires or steering means are uncommon. However, the human factor has in no way kept pace with improvements in the vehicles nor the speed at which they are driven. It is unlikely, in spite of safety campaigns and the warnings one sees displayed along the highways, that overturning of these vehicles or collisions between them will decrease.

The most common motor car fracture of the spine is a moderate degree of compression of the body of a vertebra. A car driven at moderate or high speed hits a bump; the individual riding in the back seat is tossed upward by the reaction of the springs; he automatically ducks his head to prevent its striking the top. In doing this, the anterior trunk muscles are tightened, the erector spinae group is slackened and while in this most unfavorable position he starts downward. During the downward fall, he is struck on the buttock by the seat of the car, which is thrown upward a second time by the recoil of the springs. This mechanism vastly increases the force of the impact between the passenger and the car seat. It occurs at a time when the powerful erector spinae are off guard, completely relaxed, and the anterior abdominal muscles firmly contracted. This contraction of the abdominal muscles produces a compression factor to which is added the force of the impact, making it easier to crush the vertebral body. Compression fracture caused in this manner most commonly occurs at the level of the first lumbar, less frequently at the second lumbar or twelfth dorsal. It almost never occurs elsewhere than in these three vertebrae except in the cervical region where the fifth or sixth is most often involved. When the mechanism is similar to that just described, the head of the passenger strikes the top in fractures of the cervical spine.

The most common result of extraordinary strain throughout the full length of the spine is compression fracture of some one of the vertebrae, but because there is such a fracture present it must not be understood that no other injury exists. Not uncommonly there are associated fractures of the articular processes, the pedicles, the laminae or spinous processes. Not only is compression fracture of a body the most common lesion, but it is the least likely to result in death or permanent disability. The reason for this is purely mechanical. The force causing a compression fracture is applied in such a manner that the displacement beyond the normal range of motion results in an increased angle of the hinging at the articular facets. Such increased motion beyond the normal is nearly parallel to the long axis

of the cord, whereas it requires a sliding motion to damage the cord by shearing or crushing.

It becomes convenient at this point to divide fractures of the spine into two groups; those with cord damage and those without. In either case, prompt reduction is indicated. It becomes imperative in those in which cord damage exists. Fortunately those with cord damage are easily diagnosed on the spot. No lengthy training in medicine is required to see that a neck or a back is "broken" when a complete paralysis below the lesion occurs at the time of the injury. Hence, prompt and proper diagnosis is more often accomplished and treatment instituted. Fracture without damage to the cord is seen more frequently, perhaps because it occurs more often, or perhaps from a reason quite as obvious, that other injuries in the same person have caused death to ensue with such speed that a physician's services have not been required at all or not for long. Fractures of the spine may also be grouped according to whether there is or is not a displacement of the parts. There may be great displacement without cord damage. There may be complete paralysis below the lesion with no apparent displacement of the bony structure. This may seem somewhat paradoxical but is easy to explain. The vertebrae are surrounded, braced, protected and held in position by very powerful muscles. The cord lies in a canal in which there is much room to spare. Powerful ligaments check displacement. The entire structure is remarkably elastic and tends to spring back to normal from the maximum deflection. Hence, very great displacement may occur, the cord may be completely severed, and yet the spinal column may return to normal contour and the canal to its usual capacity with little or no bony evidence that displacement has occurred. No less remarkable but more fortunate, the force causing the injury may be of such an amount and applied in such a manner that marked damage to the bony structure and considerable displacement of the parts is possible without cord injury. This is possible because of the capacity of the canal. It is likely that in such cases, the deflecting force has been less, but the rupture of the parts causes interlocking with prevention of the springing back to anything like a normal position. Strangely enough, potentially serious derangements in the spine may produce sufficiently moderate symptoms so that weeks or months elapse before the continued discomfort and disability drive the patient to seek relief from well informed sources. Even then the absence of grave symptoms may lead to a variety of diagnoses, such as lumbago, sprain, sacro-iliac disease. In severe injury the limbs are



paralyzed below the lesion with saddle anesthesia, bladder and bowel dysfunction and changed reflexes. In these latter cases, x-ray examination is immediately made and treatment instituted. Such x-ray examination should be done whenever there is a suspicion of injury to the spine. This should be correlated with the physical findings in order to arrive at a proper diagnosis.

X-ray examination consists of two parts, the exhibition of superior films and their skillful interpretation. Reliance must not be made upon standard positions in such an examination. The central ray of the tube must often coincide exactly with the plane in which the fracture lies in order that it may be seen. This is especially true in those with little or no displacement. Too much insistence cannot be placed on the necessity for good films. It is very disappointing for a surgeon to be called in consultation in a suspected injury to the spine to find that the films already available for his examination are poor and an incorrect opinion already expressed to the patient and to his family. It is easier for the consultant to explain a discrepancy in the diagnosis than it is for him to explain how poor the films are and how impossible it is for him to make a diagnosis from them. With the very best films there is often great difficulty in arriving at a diagnosis, the lines of fracture sometimes never being visible regardless of the quality of the film or the angle at which the picture is taken. An estimate of the situation then is possible only by comparing the displacement with the normal anatomy. Diagnosis should be as rapidly completed as possible, but exactness should not be sacrificed for speed. When cord symptoms are missing, and especially if days or weeks have elapsed since the injury, more days may be safely expended in a study of the case. This is not permissible in the presence of paralysis when treatment must be instituted as promptly as possible. If a prompt, accurate and complete diagnosis is for any reason impossible, one of the conservative methods may be instituted as a stop gap, traction or hyperextension by the Bradford frame or similar means.

As in other fractures, the aim of treatment is a restoration of form and function. All methods of treatment of fractures in the thoracic and lumbar region, and in certain cases in the cervical region as well, have hyperextension as their base. Transportation to the x-ray laboratory and the place of treatment should be considered as a part of the treatment. This transportation is another problem.

It is very fortunate that this structure, the spine, is a resistant one with powerful ligaments

and muscles, for otherwise, many more patients would die or be seriously injured from the handling they receive before definite treatment for the condition is begun. Invariably, injured persons are turned face up where they lie, the head and shoulders being raised by pillows and folded clothing. When carried from the place of the accident, careful hands raise them at both ends by grasping head and shoulders at the one and hips and legs at the other. The victim's middle sags. This shortens the arc of curvature anteriorly and lengthens it posteriorly, thus compressing the bodies of the vertebrae which may have already sustained an injury. This tends to exaggerate instead of decrease deformity. It may even cause cord damage which would otherwise not supervene. It would be much better if all individuals suspected of having a back injury would be placed face downward and so maintained until a positive diagnosis is made. All stretchers and all beds tend to sag in some degree and even a patient face downward on the ground or a floor tends to have the hollow of his back increase, for the abdomen is soft and compresses with his weight, allowing the spine to sag anteriorly. This is especially true if pillows are used under his head and shoulders to increase his comfort. When the patient is lifted or carried face downward, the raising of the shoulders and the hips actually initiates the type of treatment subsequently relied upon to reduce and maintain reduction. Such lifting and carrying may actually reduce the fracture of the spine before roentgen examination is done. It has been said in criticism of this method of handling that if reduced in this way a fracture may be missed because of the replacement of the parts, but such an argument is an apology for poor or careless roentgen technic or unskillful reading of the films. Proper transportation in this manner is especially important in cord damage to prevent further injury and reproduce normal capacity of the canal to lessen the likelihood of permanent evil results from hemorrhage or edema. It is not always possible in the beginning to distinguish between a complete transverse myelitis of the cord due to shearing or crushing, and a blocking of all nerve impulses produced by the pressure of confined fluid. In a smaller degree prompt restoration of the normal canal contour is desirable to provide maximum space for expansion if edema occurs or hemorrhage continues, so that the resultant tension will not subsequently break the passage of nerve impulses or cause death of the nerve cells or fibers by shutting off the circulation.

In the cervical region, the transportation situation is somewhat different. There is no paralysis.

The patient is likely to assist and steady the head with his hands and his suggestion in the matter of position can be relied upon. This is not true in paralysis below the lesion in this location except in the matter of suggestion, the patient being without the power to control. Here extreme caution in transportation is advisable.

Treatment of fractures of the spine is carried out by several methods. All fractures in the dorsal and lumbar region depend upon hyperextension produced in one of several different ways. There is the hypertension Bradford frame and a similar one of flexible metal, both adjustable so that over a period of days or weeks reduction may be accomplished. Some reduce immediately by pulling upward with a sling near the point of the lesion, this being done by the operator direct or by block and tackle, fixing the hips and shoulders, with the patient in a supine position. Others force the area of the fracture upward with a jack or other similar means. Some hang the prone patient between two tables and allow the sag to reduce the fracture. While in this position a plaster jacket is applied from the shoulders to the pelvis. This is one of the simplest methods and one which can be used almost anywhere under any circumstances. None of these is so simple or effective as pulling the feet of the patient upward with a block and tackle from a hook in the ceiling, with the patient lying face downward. When the feet have been raised so that only the chest and arms are in contact with it, the table can then be turned crossways so that his fingers grasp the farthest edge. Finally the legs are nearly vertical. In the end, even the chest clears the near edge, the patient is supported almost entirely by the feet, the arms carrying but a small portion of the weight and acting to prevent swinging. When this point is reached, the fracture is reduced and the plaster may be applied. This should be done over stockinet with no other padding. In this way, a perfect fit and extreme hyperextension is obtained. The patient hangs clear. There is nothing to interfere with the rapid and effective application of the plaster spica. This method is only advisable in cases without cord symptoms. No anesthetic is needed and no great amount of time is required.

Recently it has been said that sufficient pressure cannot be obtained to maintain such hyperextension without damage to the skin. No one expects such force to be applied. Except when the patient is lying down, the cast does not actually carry any load. It merely makes the patient so uncomfortable by anterior pressure over two points, the chest and the pelvis, and posteriorly at one point, the small of the back, that the patient arches his

back by tension of the erector spinae muscles to relieve the three pressure points and in this manner carries the load with his own muscles and the articular processes, not relying upon the support of the plaster jacket. In the employment of this method, the stockinet chosen should be of such size that it fits tightly over the skin. If it is snug enough to give some support to the abdomen and lessen its sagging, it is even better. The plaster is then *laid on*. Under no circumstances should the bandage be pulled tight. It should be laid on smoothly and patted into place so that there will be no ridges or wrinkles. It is in the first few turns that such irregularities occur, subsequent turns of the bandage being drawn tighter and causing wrinkles in the underlying earlier turns. This must be prevented at all cost. In the beginning the bandage should be cut with scissors instead of being folded back or reversed in order to run properly on the curves. When the initial turns have set, the remainder can be put on as rapidly and roughly as may be. At the wings of the ilium the plaster should be pressed in by the palms of the hand. One runs less risk of wrinkles if, in making the turns of the plaster, the bandage hangs several inches below the abdomen so that it must always be pressed up in place. If this suggestion is followed there is much less risk than if there is the slightest hint of tension. When all is set, the edges may be trimmed to suit and the stockinet drawn up and over to provide a slightly rolled edge. If one is expert and experienced in the use of this method, no cutting may be necessary, all the edges being formed at the proper level as the plaster is applied. With the edges rolled back by the stockinet, one or two rolls of plaster should be applied to finish the outer surface and hold the exposed portion of the stockinet in place.

Care must be taken to allow room at the axillae for the free movement of the arms. If this is not done the patient will complain that he is unable to care properly for himself at the toilet. This freedom at the axillae must be allowed while still keeping the plaster high over the chest. Freedom must also be allowed for flexion of the thighs on the trunk, at least to a right angle, for in this jacket it is expected that the patient will later sit and walk as well as recline, at the same time carrying the plaster low over the pelvis almost to the symphysis pubis. No other method is so simple to accomplish nor quite as satisfactory to the patient. No padded cast can be made as comfortable as this nor give as firm fixation. When the patient is swung between two tables, the hips are uncomfortable to the patient and the tables interfere with the rapid completion of the jacket. The



edges of the table make it almost impossible to get the cast high enough on the chest or low enough on the pelvis. Although it is possible that this treatment would be satisfactory for patients with cord involvement or very marked displacement, it is commonly limited to those patients who have no cord symptoms and no marked displacement. Patients with cord involvement or marked displacement are usually placed face upward on Goldthwaite bars which have been bent in advance to form the curve estimated to maintain the reduction once it has been accomplished. The reduction is then done by the sling or jack method and the patient is allowed to settle downward on the bars. In this case, the plaster is carried to the knees or the head, depending upon whether the lesion is high or low. Such a cast is well padded throughout. It is an advantage to cover the Goldthwaite bars with tubes of felt which then distribute the body weight to the muscles of the erector spinae group instead of allowing all the pressure to be concentrated on the superficial spines of the vertebrae. Pressure sores are therefore less likely. Why there should be any adherence to the slow and waiting method of attempting reduction by traction or slowly increasing hyperextension is not apparent except when the operator fears for his lack of skill or the referring physician or family is ultra-conservative and will not permit immediate reduction. If reduction is essential, so also is its prompt accomplishment. If the patient is in poor condition from shock with marked displacement and cord damage, there is perhaps some slight excuse for the slower method; but it is more logical to assume in such a case that more rapid improvement would occur if displacement was immediately accomplished.

All derangements in the cervical spine with the exception of compression fracture of a body of a vertebra, where speed is not so important, should be corrected immediately that a diagnosis can be arrived at, and although there may be no apparent damage to the cord or nerve roots, enough pressure may be exerted by the displacement to cause a delayed myelitis with all the disabilities such a condition may produce, or the malposition may cause excess callus to form at such places which may later impinge the nerve roots. Prompt reduction lessens the likelihood of this misadventure but proper diagnosis is essential. Sufficient time, care and skill must be exercised in making the diagnosis before manipulation is carried out, but when once made, the displacement should be promptly corrected. Days and weeks of traction on the cervical spine by means of head harness, weights and pulleys, is not only useless but often dangerous and can be excused only as an expe-

dient of those unfamiliar with the necessary procedure or while awaiting a diagnosis or a decision as to the method of treatment. The only definite and positive results of the head traction treatment are pressure sores on the chin and occiput, and continued pain and discomfort to the patient. In traction there is no fixation of the cervical spine of any moment whatever, and the amount of available traction short of pressure sores is utterly inadequate even if traction were the proper treatment. But this traction is not treatment and even as a stop-gap should be discontinued as soon as a definite plan can be put in operation. It does not aid in preventing cord damage if such has not yet occurred, although this idea is prevalent. There is no restriction of rotation of any amount and the little available tractive force is no very great deterrent of bending. It is a question that with the patient at rest in bed anything more is required until a definite plan is undertaken. Traction upon the patient may be necessary as treatment to the family, but it is unfortunate that the patient's chin should become sore because some one member of the family desires that something be speedily done.

Here as elsewhere in the spine the force exerted has caused much greater displacement than is usually observed at the time of examination. Upon cessation of the causative force there is a springing back of the displaced parts due to muscular and ligamentous pull to as near normal as bony impingement permits. If there has been no injury to the cord or nerve roots, there is not likely to be any by such incidental and accidental motion as might be caused by the patient himself or by the nursing care. It is inconceivable that the patient could produce against the resistance of his muscles and ligaments a force equivalent or superior to that which caused the original injury.

Some years ago, reduction of all fractures in this region was considered dangerous and laminectomy was advised as a means of relieving present or anticipated pressure on the cord or roots. The results of this operation were discouraging and it has been largely discontinued. At the present time it is being revived for fractures in the lower regions. Here also, it is likely to enjoy but the briefest life. The reason for the discontinuance of laminectomy is not obvious but is clear when properly considered. A displacement may pinch the cord momentarily due to the previously mentioned elasticity of all the involved soft tissue. Following this instantaneous trauma of the cord, edema may occur, but not cause sufficient damage to block nerve impulses. If laminectomy is done, normal resistance of the tissue surrounding the

cord is removed, and if there is no proper resistance against swelling, the edema may progress to a point which has been described as an explosion and the patient soon may have all the symptoms of a transverse myelitis. This situation is said to have been not uncommon after laminectomy. If restoration of normal contour of the canal is accomplished by manipulation, its resistance to the swelling of the cord tends to prevent this so-called cord explosion which may otherwise result from unrestricted swelling. This advice should not be construed to mean that when fragments of the laminae are depressed upon the cord these fragments should not be raised or removed. This is a definite situation. It may give rise to a definite set of symptoms and require its own particular treatment.

In correcting displacement of the cervical vertebra, whether fracture, dislocation or a combination of both, manipulation without traction is preferable in most cases. In general, the lesion is one-sided so that the uninjured side may be depended upon to aid in reduction. If traction is used with manipulation, it interferes with the proper performance of the manipulation by causing tension on both sides, whereas, to accomplish reduction most easily, tension is required on one and compression on the other. If both sides are involved, neither side can be used as a fulcrum and traction is essential if reduction is accomplished.

No set rules can be established for the application of the plaster in cervical spine injuries except that a normal position should be obtained, and the plaster collar or jacket be constructed to prevent rotation, flexion, extension and bending, and to provide a weight bearing support for the head. The cervical spine may need to be fixed in a position of hyperextension, anterior flexion or lateral bending. At times a simple collar carrying the weight to the shoulders is sufficient. Usually a long spica to the pelvis with the shoulders free is more efficient. Elastic or adjustable web shoulder straps can be used if desired, providing a constant and controllable uplift to the head. In this manner a moderate degree of traction may be added to the plaster fixation.

#### CONCLUSIONS

1. Transportation of all suspected back injuries should be with the patient face down.
2. Transportation of patients with suspected injuries to the cervical spine may be permitted with the patient face up.
3. None but superior x-ray examination should be tolerated.
4. Reduction should be as prompt as possible.

## MODERN TRENDS IN PSYCHONEUROTIC REACTION TYPES\*

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Whatever the attitude of physicians may have been at any stage of medical history in regard to the importance of postgraduate training, at present there exists no doubt in the minds of all earnest workers in this field that the graduation from a medical school is not to be taken as the completion of our study of the subject. The rapid progress that has been made in medicine within recent years, the permeation into allied fields of the basic sciences and the discovery of new facts about the etiology, nature and treatment of a large number of pathologic conditions have definitely shifted the emphasis from undergraduate to postgraduate training. The necessity of such a shift in our attitude stands out particularly clearly when we consider those phases of the medical field that have been affected in an especially pronounced fashion by these new trends and of these there are very few that can rival the subject of the psychoneuroses.

Practically speaking, the psychoneuroses were introduced into the field of the medical sciences as late as the second half of the nineteenth century. At that time the brilliant group of neurologists and psychopathologists gathered around the stimulating influence of Charcot at the Salpêtrière, made the first attempt to lift this group of ailments out of the enshrouding mists of metaphysical speculation and establish a place for them within the field of medicine. Since then the subject has grown, particularly in its practical significance, and at present most physicians will recognize the fact that whatever one's chosen field of activity may be, a fundamental knowledge of the psychoneuroses is indispensable. Even from the point of view of numbers, we have reached a point now where some reliable authorities claim that perhaps seventy-five per cent of all cases admitted to the average general hospital are either wholly or partly psychoneurotic. In addition to this and in spite of the comparatively short existence of this subject it has had more varied and radical developments, perhaps, than is true of any other disease entity. Changes in attitude toward the psychoneuroses, radical departures in method of treatment, contradictory and disputed concepts of etiology, and important implications in the relationship of these maladjustments to sociologic, legal, religious and philosophic problems have each contributed to the vast chain of new and important discoveries.

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It is necessary for the practicing physician to take cognizance of these new developments if he is to deal adequately with the large number of patients who suffer from these maladjustments and in most cases he has done so. In the present contribution, however, we should like to emphasize the importance and implications of another, equally significant but less generally appreciated, development in this field, viz., the metamorphosis in the actual clinical aspects of these disturbances as we see them today. One does not have to look far for evidences of such a change. To begin with we have the fact that since the first formulation of the modern concept of the psychoneuroses, entirely new entities in this group have been described. Thus we have the formulation of the concept of neurasthenia by Beard and its further clarification by Freud, and we have the isolation of the syndrome of the anxiety neurosis from the broader concept of neurasthenia by Freud, to mention only two of the more important of these. Beside this, however, there has been a more important and far-reaching series of changes in the clinical pictures of all the neuroses from what they were in the days of Charcot.

The actual symptom complexes presented by the psychoneurotic patient of today will seem new and strange to the student who has received his mental pictures from the older textbook concepts and who thinks of hysteria in terms of Charcot's descriptions or of psychasthenia along the lines established by Janet. The modern clinician who has had an opportunity to observe a large number of psychoneurotic patients will seek in vain for the clear-cut "grand hysteria" of Charcot with its typical stigmata, theatric convulsions, definite hemianesthesia and telescopic vision. In the same way he will seldom see the definitely circumscribed, multiple personality or the distinct phobias or obsessional neuroses as described by Janet and others. Instead, he will find an almost endless chain of nondescript and vague pictures with mixtures of feelings of restlessness and inadequacy, numerous somatic complaints, empty intellectualizations and indistinct depressions with general listlessness and inability to concentrate. These pictures not only fail to conform to the early descriptions but, for the most part, they lack consistency within themselves, shifting from one symptom to another and changing their clinical pictures as various methods of treatment are undertaken.

As we attempt an analysis of this change we are first of all confronted by this question; has there actually been a drastic change in the clinical picture of the neuroses or have the earlier writers failed to appreciate the true nature of the ordinary run of such conditions? This problem is of more than theoretic importance. It represents a prac-

tical need because, if it is true that the psychoneuroses as a whole have changed for some reasons, the appreciation of these reasons will bring us nearer to the discovery of the causes of psychoneuroses in general and will thereby, also give us an opportunity to establish more adequate methods of treatment. Furthermore, since different types of psychoneuroses are amenable to different forms of treatment we must be able to diagnose the new forms of these maladjustments properly, if they do exist, in order to keep up with adequate therapeutic methods. An equally important consideration would come to the fore if we were to find that some forms of treatment in themselves produce a change in the clinical picture. We must know whether the treatment actually lessens the seriousness of the condition or whether it causes a shift to a more serious mental disease.

It was suggested above that this change in the types of clinical pictures is subject to two possibilities. Either the older observations were made on isolated cases and were not true of the majority, or they were adequate samples of conditions that existed at that time but which are not present today. Actually both of these possibilities are true and in the following discussion we wish to present an analysis of the problem in relation to them.

If the neuropsychiatrist, especially one who is connected with an institution for patients with mental diseases, should undertake an analysis of the patients diagnosed as psychoneurotic and would compare them with those who come under the observation of the general practitioner he will be impressed with a most striking discrepancy in the types of reaction. The general practitioner is likely to continue to treat the chronic complainer, the inveterate hypochondriac, the so-called "neurotic" and other "harmless" patients by symptomatic medication or by "common-sense" methods, such as scolding or reasoning, but will not do so with those patients who present a more serious or at least a more sensational departure from normal behavior. Given a particularly intriguing case of hysteria which involves the differential diagnosis from a possible intricate neurologic condition or a far-reaching and unintelligible series of obsessive or compulsive phenomena, he will refer them to a specialist in neuropsychiatry. It is logical to expect, therefore, that the patients referred to such clinics will be of a special type and will represent the more serious involvements which are more strictly differentiable from other conditions. When we consider how small the number of such specialists actually is we can see how such a group of patients would fail to present a typical cross-section of that seventy-five per cent of all medical cases that was mentioned above. When the num-

ber of neuropsychiatrists interested in such cases is reduced to the minimum which existed in Charcot's time, and when the number of general practitioners who regard the psychoneuroses as interesting curiosa rather than medical diseases is raised to the maximum which existed at that time, we can easily account, at least for a part of the discrepancy that exists between the early descriptions of psychoneuroses and their actual occurrences today.

This can account for only a part of the difference, however. In some of the modern contributions to this problem by observers who have been in the work for many years and who have seen large numbers of patients, we find repeated statements that the old-time neuroses seem to have been reduced to a negligible minimum. Very few of these workers, for instance, have seen more than a few isolated cases of the Charcot type of hysteria and yet we read reports of large numbers of such cases in the older literature. The old epidemics of mass hysteria are rare in present day society, at least in the form of the famous group afflictions where whole communities would develop hysterical convulsions or fugues. Wechsler, in his textbook on the neuroses, suggests and quite justifiably, that the reasons for the disappearance of certain forms of neuroses are to be looked for in the general changes that have taken place in the social life and customs of modern civilized communities. It must be remembered that of all forms of maladjustments, the psychoneuroses are most intimately related to sociologic conditions and it would seem much more significant to apply the name "social" disease to the psychoneuroses than to other well-known ailments. Most modern concepts of the causes and development of psychoneuroses regard them as failures in adjustment to conventionalized social life with the symptoms appearing as substitute and compensatory activities; but we must admit that social conditions of today are radically different from those of the early Victorian days in which the first concepts of the psychoneuroses were established. If the psychoneuroses are dependent upon sociologic conditions it is not surprising that they have undergone a radical change.

Various observations tend to support this view. An interesting and scientifically reliable proof of this contention is found in studies which have been undertaken in comparative neuropsychiatry. As an example we will quote the work which has been done by a group of Russian students on this subject on conditions among Caucasian tribes. These studies were carried out over a number of years and it was actually shown that not only was there a difference between the types of neuroses found in tribes of different levels of civilization

but that in the same community improved educational conditions have actually effected a transformation from one kind of neurosis to another. Thus Serejski reports that with the change from primitive life to that which we call civilized has come a marked decrease in the so-called extraverted and childish hysterical symptoms to a more vague and variegated picture of psychogenic depressions, neurasthenic pictures and somatic complaints. This would mean that the change in the forms of the neuroses is more than just an apparent one and is related to other changes in human life following inevitably on radical sociologic transformations that have taken place during the past two or three decades. Further proof of interrelationships of this type is easily afforded by the development of the new entities to which we referred above. For instance, we need not go into great detail in order to appreciate the close relationship between the complexity and confusion introduced by conditions in congested city areas since the end of the last century and the appearance of that series of symptom complexes which Beard describes under neurasthenia; nor is it hard to see the relationship between the development of the anxiety neuroses and the economic conditions that have necessitated late marriages with consequent prolonged periods of sexual abstinence.

There is also a third possibility which is more subtle and less easily recognized but is just as important in the changes in these disturbances in adjustment. We might almost regard this as the expression of the disease itself in the form of a purposive reaction to the methods of treatment which have prevailed among physicians since the first systematic attempt at treatment by Charcot and his followers. To understand this we will have recourse to the time-honored custom in medicine of searching for parallels between developments in the individual and developments in the race. It is a generally accepted fact that the individual repeats the history of the race in his own development. Embryologists have made some use of this concept to gain insight into the different stages of the development of the embryo on the basis of its parallel in the evolution of the race. It is reasonable to reverse this process and attempt to understand a given series of changes in the group by way of a study of the individual. We have suggested above that in the treatment of psychoneurotic patients we frequently observe shifts in the nature of the process in direct response to certain types of treatment. By following that line of approach we shall attempt to explain such shifts in the psychoneuroses in general on the basis of certain methods of treatment and certain attitudes toward psychoneuroses which have prevailed during the period we are discussing.



Let us consider, therefore, the possibilities as we meet them in individual cases. These cases have been selected primarily because they show in a very striking way the drastic changes in the clinical pictures that have been introduced by certain methods of treatment.

The first case is that of a married woman, thirty-nine years of age, in good physical condition, and showing no clinical signs of the menopause. She was admitted to the Psychopathic Hospital from a general hospital in a state of agitated depression with fears of persecution, torture and impending death. She had been in the general hospital for several weeks where her initial complaints had been rather obvious conversion symptoms of abdominal pain. A thorough physical examination there had shown no organic basis for her complaints and the physicians had tried to dissuade her from her symptoms by telling her it was "all her imagination" and that she ought to "snap out of it" or she would develop more serious mental trouble. A little later she overheard two nurses talking about her case and one of them said that the physicians "were tired of her complaints and would probably send her on to a state hospital." Following this she developed the state of depression which brought her to the mental clinic. Here it was necessary to deal with the new symptoms before any attempt could be made to discover the original psychoneurotic manifestations and their nature. A careful analysis was undertaken which brought out the following facts. She had always been of a shy, sensitive and withdrawn personality but had shown no symptoms otherwise until six months prior to her admission. She was married at the age of thirty-two to a man who was very strongly attached to his mother. Because of his mother's advise he had refused to allow the patient to have children although she had always wanted to have a family. This made her unhappy although she said very little and kept her worries to herself. As time went on and she considered herself approaching the menopause her feelings of frustration became accentuated. About six months before her admission her sister had an appendectomy. The patient went to visit her and when she saw the removed appendix in a jar she fainted and after returning home began to complain of the abdominal pain which brought her to the general hospital. Her symptoms at first succeeded in making her the center of attention with her mother-in-law and her husband but when repeated examinations failed to reveal signs of organic disease they lost interest and suggested that she was only pretending to be sick. The analysis which brought to light several other experiences which were responsible for the development of the particular conversion symptom suc-

ceeded in removing it and a discussion of the whole problem with the husband brought about an amelioration of the patient's difficult home situation. We find in this case that as a result of a certain type of treatment (superficial suggestion) and the threat of removal to a hospital for the insane the clear-cut psychoneurotic symptoms are renounced and are replaced by a much more serious condition which offers a greater interference with her adjustment.

The second case is that of a woman, fifty-five years of age, who was brought to the hospital with a typical picture of a paranoid dementia praecox. An intensive study of the history brought out the following facts: She was married to a man whose intellectual and educational level was lower than hers and whose personality was crude and unsympathetic. Three children were born and in each case the birth was followed by minor neurotic symptoms. As the husband grew older the marital situation became more unsatisfactory and several years before the present admission she began to show hypochondriac manifestations such as continuous headaches, backaches and feelings of lassitude. Here, too, the symptoms at first succeeded in procuring the sympathy of her family and numerous consultations with physicians were undertaken. When no organic signs were discovered, however, the family lost interest and made no attempt to understand the psychogenic reasons, for them. Finally, the oldest daughter who had acquired some second-hand knowledge of the popular versions of psychotherapy started an amateur analysis which only reinforced the patient's introspection and brooding about her emotional frustration. When the daughter saw that the case was beyond her understanding she suggested that the mother go to the Psychopathic Hospital where "they could really cure her." The idea of going to a hospital for insane patients only intensified the mother's symptoms with the addition of feelings of apprehension almost amounting to panic. The tension thus developed led to the administration of large doses of luminal and after a short time the patient began to develop delusions and hallucinations of a persecutory nature in which the director of the hospital was the leading figure in a plot to imprison her for life. This went on for a long time before she was finally brought to the hospital, but by this time the process had become so well established that all attempts at psychotherapy failed to help her.

Whatever the relationship between dementia praecox and psychoneuroses may be and whether or not we consider it possible for a psychoneurotic individual to be forced to find refuge in this more serious and malignant disease by virtue of faulty treatment alone, we do find in this case a change

from one type of mental disease to another. As conditioning factors certain, if not the only causative ones, we find that the failure to recognize the fundamental psychogenic reasons for the development of the neurosis, the accusation that she was consciously trying only to gain attention and the facilitation of the development of projections by the large doses of luminal played an important rôle.

A third case also shows a similar situation without, however, actually driving the patient into an irreversible mental disease. This patient, a woman thirty-two years of age, was brought to the hospital complaining of feelings of unreality, inability to concentrate, suggestions of ideas of influence and loss of control of her thought processes. An analysis showed that there were pronounced tendencies toward abnormal sensitivity, suspiciousness and day dreaming, both in her family history and in her own development. Her early life was characterized by a series of psychosexual traumata which conditioned her against an adequate heterosexual adjustment. She was married to a non-medical practitioner who had dabbled in what is popularly known as "psychic healing." The patient was sexually frigid from the beginning of the marriage and soon began to develop hysterical symptoms mainly in the form of sick headaches, dizziness and anxiety. The husband attempted analytic treatment which succeeded only in making the patient withdraw more and more into herself. The failure of the analytic treatment made the husband change his tactics and he began to discuss the symptoms with her telling her they were due to some alleged fixations and compensations for lack of sexual drive. He succeeded in making the original symptoms disappear but she soon began to show the more serious and incapacitating manifestations which were present on admission. An adequate analysis of the case and a discussion of the situation with the husband secured a recovery and a better adjustment.

One need go no further in quoting cases. Numerous examples are available in which such results of inadequate treatment can be shown. Anxiety attacks and sleeplessness treated with strong doses of improper sedatives leading to the superimposition of toxic conditions on neurotic symptoms, strong suggestion and intimidation of hysterical patients with a temporary disappearance of the symptoms which may recur later or be reinforced by other and more serious ones, inadequate analyses of comparatively harmless conditions which may make for the development of introspection, rationalization and empty intellectualization more serious than the original symptoms, are all common occurrences to physicians who have had experience in this field.

The important point is that, given adequate reasons for the development of a psychoneurosis in a person whose make-up and upbringing permit such a development, only two possibilities can be considered. Either the cause is discovered and removed or some channel of escape must be available. If the psychoneurotic symptom is rendered unavailable and the cause is not removed it is inevitable that some other form of reaction must develop. In some few cases, it is true that if the patient is not tampered with other than refusing to accept the symptoms, the given personality may be strong enough to render the symptoms self-limited or the imagination may be rich enough to procure new ones of the same type. In a large number of cases, however, where the fundamental causes are not found the results may be seriously detrimental.

In individual cases, therefore, certain methods of treatment can condition a change in the type of reaction. Is it possible that special types of treatment if carried on for a long period of time may have a similar effect on the members of a given group and actually condition the occurrence of new forms of neuroses? The modern concept of psychoneuroses and the methods of treatment which have developed in relation to the discovery of some of the causes has become systematic only within recent years but it bears a distinct relationship to the older ideas concerning these maladjustments. The importance of sexual frustrations and traumata as causes of the neuroses so clearly brought to our minds by the psychoanalytic theory has its forerunner in the rather nebulous concepts of the ancient Greeks as is proved by the very name of "hysteria." The search for unconscious mechanisms as fundamental disturbances is not unrelated to the medieval notions of the good and evil forces struggling within us for possession of our souls. The idea that the psychoneuroses are developed to gratify some personal need or craving finds its rudiments in the old method of treatment which considered the patient as "play-acting" or shamming and used "strong-arm" measures to make him give up these methods of behavior. As the subject became systematized and introduced into the more scientific limits of medicine, the treatment, too, began to be systematized along the lines of the possible fundamental causes of their development.

Two trends stand out clearly from the many differences of opinion in the various schools which have developed since the day of Charcot. These schools have directly opposite attitudes toward the development of these maladjustments and consequently of the most advisable methods of treatment. We have, on the one hand, the group that considers the psychoneuroses as pri-



marily purposive trends produced by persons of an hereditarily poor make-up with a more or less conscious effort to gain a definite goal. Opposed to this is the more recent attitude that the psychoneuroses are acquired and are dependent upon an unconscious process in which conflicting instinctive drives lead to the development of symptoms which are not understood by the patient. With this split in the attitude toward the neuroses there have also developed two extreme methods of treating them. On the one hand we have the "hard-headed" idea of forcing the patient to relinquish his symptoms by strong suggestive methods, by intimidation and accusations of malingering. We still find physicians attempting to cure hysterical paralyses by strong electric currents, by slapping the patients, by threatening them or by ridiculing them. Such methods can only lead to the formation of other symptoms because the cause is not appreciated either by the patient or by the physician. The extreme protagonist of the purely psychogenic and unconscious causation of the neuroses, on the other hand, who regards the maladjustment as developing solely on the basis of certain rigidly prescribed early experiences will fail to see the importance of social settings, of personality peculiarities and of possible conscious superimpositions which are present in most cases. Without adequate training and insight such a therapist may lead the patient into minute introspection and self-observation, and both the patient and the therapist will be deluded into the belief that it is only necessary to discover a few intriguing sexual adventures in the patient's early life to provide a panacea for all psychoneurotic ills.

Our experience with individual cases permits certain conclusions in relationship to the possible effects of some methods of treatment. We gain first of all the insight that the psychoneurotic symptom complex will respond to treatment in a manner similar to that of any other pathophysiologic process. Here too a symptom must be regarded as a reaction of the organism to a noxious agent. If the symptom is treated by removing the cause we can expect recovery, otherwise we run the risk of producing other symptoms more serious than the original. We all know, for instance, that the symptomatic treatment of fever without removal of its cause will result in taking away one of the methods of defense of the organism, thus allowing the invading agent to cause more harm. Certain drugs, for instance, which interfere with leukocytosis have similar dire results. The situation in case of a psychoneurosis is similar and the treatment must aim not at a removal of symptoms but at the treatment of their causes.

In the case of mental symptoms, however, the

implications go deeper. Since the attitude of the physician, his statements, and his manner toward the patient exert a powerful influence, the injurious results of over-accentuation of certain methods need not depend upon direct contact between physician and patient. Prevalent ideas originated by physicians but becoming popular notions, statements of a general type applied erroneously to individual cases, popular literature which usually picks up catch phrases and tends to expand and interpret them in a manner which was never intended for them, all these will have the same effect upon the group as the personal interview has on the individual patient. In this same manner, the process, which we found occurring in the single cases previously quoted, is repeated in the group. Actually we can trace the development of peculiar symptoms in some of our psychoneurotic patients to the gradual permeation of certain ideas into popular theories. With the indirect transmission of such ideas from person to person an undisciplined but deeply rooted tradition arises, which, since it is believed to have originated in medical teachings, carries with it the same authority. Thus it is, probably, that the beliefs in the dire effects of masturbation, the relationship of heredity to mental disease, the stigma of malingering attached to hysteria and finally the distorted ideas about psychoanalysis have developed and have gradually influenced the group as a whole in the same manner as certain inadequacies of treatment affect single cases.

In our work with individual cases, mistakes in treatment have the compensatory effect of teaching us to be more careful with future cases. Let us hope that the recognition of faulty ideas that have found their way into popular belief will lead to a program of education of the public which may serve to eradicate their injurious effects.

#### Discussion

**Dr. Russell C. Doolittle, Des Moines:** I am sure we have all enjoyed this interesting and original paper by Dr. Malamud, and while we have all been conscious of some changes in the psychoneuroses, the fact that there have been such definite and extensive changes may come to some as a distinct surprise. We have all noted the decreased incidence of major hysteria, and in fact I doubt that in our times, except during the World War, it ever ranked numerically in proportion to its prominence in textbook descriptions. It is spectacular and definite, and writes up better than the more indefinite psychoneurotic manifestations and is therefore given more textbook space than it deserves, except historically. I have always thought of it as a relic of the Middle Ages, and as a defense reaction of the more primitive, emotional, ignorant and religion burdened type during periods of violent stresses and strains such as wars, pesti-

lence and famine. It seems to be dropping out rapidly of the American picture. It would seem also that in addition to fewer cases of hysterical convulsions, paralysis, etc., there are fewer cases marked by complaints of increased fatiguability and more cases characterized by anxiety states, which, because emotional and anxiety states react promptly and vigorously through the sympathetic nerves, set up what we now see more commonly, the organic reactions such as the functional cardiac, gastro-intestinal and neurocirculatory disturbances.

I believe that the change in educational standards is an important factor in the problem. It is as if patients are retreating to a second and more highly camouflaged line of defense of more subtle complaints as education and general information make the older complaints too obvious to others and too conscious to the patient to be good defense mechanisms.

There is no question but that changing social and economic conditions are also a factor. The neurasthenia of 1870 was not closely associated with hysteria. It was interpreted as a fatigue reaction to fast living, money making, social climbing, the drive of work and more work, and was significantly called nervous exhaustion and nervous prostration, a complaint of business executives and society women, certainly not a poor man's illness. It was strictly an American disease, although skilled workers imported from England did develop it in the American atmosphere. S. Weir Mitchell, writing about 1870, thought the speeding up of American life due to the telephone and the railroad was a factor. Times have changed and we now come to a period of excitement, competition, of extreme uncertainty as to employment and financial security, of contrasting states of overwork and idleness, and as the essayist has suggested, a period of delayed or prevented marriage with its resultant nervous tensions. These conditions result in anxiety states with their especial effects on cardiovascular, gastro-intestinal and glandular systems. Aeroneurosis, described recently by Armstrong, has all the features etiologically and symptomatically of an anxiety neurosis and should be so considered, yet it deserves special emphasis as evidence of this process of change in the neuroses.

Another aspect of the situation will be apparent if we compare the female neurasthenic of forty or fifty years ago with a similar patient of today. The former was much more subject to hard and monotonous work, masculine domination, large families, unhygienic dress, little recreational or diversional exercise, and the unattractive outlets of church, missionary society, Ladies' Aid Society, etc. Under such circumstances what would be more natural and likely than that a woman would take to her bed with the major complaint of excessive fatiguability as her defense reaction? Any other type of escape would have ruined her reputation. I am speaking now of the "illness for gain" type of reaction which in the final analysis is a factor to be considered in a considerable proportion of our psychoneurotic individuals. Now there is less work and less child bearing, much more

financial and domestic independence, and easier and quite respectable divorces as means of escape from intolerable situations. There are much more attractive outlets for feminine energy, the club, the movies, the auto, the cocktail party, the pleasures of which need not be sacrificed when a defense reaction is being chosen. Therefore, the modern neurotic woman unconsciously chooses the more subtle and restless complaints which require lessened responsibility and more attention, but which still admit of activity rather than bed rest which would close the avenues to those more attractive activities. Of course all women do not conform to the above description. However, there are enough of this type to affect the statistics.

Turning from external influences we find that the medical profession, too, has changed the complexion of the psychoneuroses by gradually adding to the group various ailments which had heretofore been on a basis of unknown or erroneous etiology. For example, the spastic colon, heart palpitation without demonstrable organic pathology, certain dermatoses, certain features of gastric hyperacidity and ulcer, exacerbations of diabetes, and etiologic influences in hyperthyroidism and hypertension, are admittedly on a psychogenic basis. Better methods of differential diagnosis and a better understanding of psychopathology have made this possible.

No doubt the "effects of treatment" which is the essayist's major thesis, have operated to distort or complicate as well as to simplify many psychoneurotic pictures. When forced from one position without a resolution of the conflict the psychoneurotic patient is likely to entrench himself behind a set of symptoms more deeply rooted in unconscious mechanism and therefore more stubborn and more malignant. Therapy often suggests new symptoms and recalls to consciousness, without dispelling them, certain troublesome memories, certain factors of the personality, the acceptance of which is incompatible with mental peace and to which the therapist is possibly unable to desensitize the subject. However, with the fact before us that certain psychoses, particularly the late schizophrenias, so often begin with a neurasthenic state and with the lingering idea of the specific nature of the various psychoses and neuroses, one should accept with caution the conception of transmutation on the basis of suggestion. One must admit that the whole matter of psychiatric diagnosis and treatment is in a healthy state of slow but steady change and that the nature of certain psychiatric conditions is changing. One must also remember that the average layman is much better informed on these matters than ever before. Therefore, to understand and manage the modern psychoneurotic patient one must possess a much broader knowledge of psychiatry than was necessary in our student days. It behooves us as physicians to note the implication of such papers as this in order that we may be on guard to treat these cases adequately and to avoid meddling practice.



## THE REFINEMENTS IN REFRACTION\*

F. W. DEAN, M.D., Council Bluffs

In 1893 while working at Moorfields, London, Mr. Nettleship asked me to do a refraction for him. I asked if I should use a mydriatic. He replied in the negative and then explained at length how with care I could do a better refraction without using a mydriatic. I began private practice in the fall of 1893. From that time I have followed Mr. Nettleship's advice and have prescribed glasses, except with children and very rarely with adults, without the use of a mydriatic. In early years that method was embarrassing. Now that so many are refracting without a mydriatic I do not feel so much alone. There are still those who insist the muscles of accommodation must be paralyzed in every case in order to do a refraction properly. Some day they will wake up to the fact that they are doing no better work than others and are putting their patients to a great deal of unnecessary inconvenience.

My technic has been changed from time to time if a method was found which seemed an improvement over the one in use. The method to be desired is the one which leaves as little as possible to the judgment of the patient. At present we are refracting with the aid of Verhoeff's charts. With them one gets the degree of the cylinder axis, the amount of astigmatism and the whole refraction accurately, and easily, and very little is left to the judgment of the patient. The following explanation will describe our use of the Verhoeff's charts.

A record of vision is made for each eye without lenses, using an ordinary test chart at six meters, one eye being covered. Plus lenses of increasing strength are put in the trial frame until the vision is reduced to 20/70, or less if the original vision was very poor, making sure the focus of the entire astigmatic cone is in front of the retina. The patient is cautioned against trying to improve the vision, as we want the vision blurred. If the patient is strongly myopic it is clear that the focus is already in front of the retina and it may be necessary to use minus lenses to bring the vision up to 20/70 or 20/200, so that the lines on the charts may be visible. With this blurred vision the patient is asked which spoke in the Verhoeff wheel is the most distinct. Whether the line is much or little clearer, it gives the degree of the axis of the curvature of the cornea which focuses nearest to the retina.

The second chart with the two dark lines crossing at right angles at the center, is now hung over

the wheel with one of the two lines at the degree of the axis found on the wheel. Minus cylinders are placed before the eye with the axis at right angles to the more distinct line, until both lines are equally clear, indicating that the focus in each direction is equidistant from the retina. We are thus able to determine the strength of the cylinder required to correct the astigmatism and the degree of the axis. In most cases this can be done so accurately that a minus one-eighth diopter cylinder placed before the eye with its axis in the direction of either of the two lines will make that line the clearer. This measures the amount of astigmatism more accurately than any other method with the use of atropine.

The next step is to reduce the strength of the spherical lens until the best vision is secured. That occurs when the focus of the cone of light falls on the retina. If at the beginning of the examination the vision had been reduced to 20/70, the removal of about 1.00 or 1.25 diopter will give the best vision for the eye. If this reduction shows inconsistency and one is certain no error has been made during the examination, it is an indication that a mydriatic may be necessary. These cases are so rare that we do not find more than one or two during a year's work in our office. A full strength cylinder is prescribed. Last summer a 12.00 diopter cylinder was prescribed for an untraumatized eye. If the cylinder is strong and at an off axis or a different axis than the one he had been wearing, the patient is warned that until the eyes become accustomed to the change the glasses may not feel comfortable and objects may look misshapen. By this method of examination we add plus spherical lenses to reduce the vision to 20/70 or less and in so doing we are making use of the fogging test for overcoming the much talked of spasm of accommodation, a condition which, as I have said, is very infrequent.

A bulletin from the Green hospital in San Francisco describes a "precision refraction instrument" with a claim that the time of examination is much shortened. Quoting from this bulletin, "If one realizes that at every change in lenses, or adjustments during a refraction, the eye attempts to adapt itself to the new condition, it is easily understood why inaccuracy may result from the fatigue and mental confusion that accompanies a prolonged examination." I can understand that the instrument may shorten the time of an examination as compared with trial lenses placed before the eye by hand, but I doubt if less time is required than in this method with the Verhoeff charts. Moreover, with the "precision refraction instrument" the eye must attempt to adapt itself to

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the new condition at each change of lens or adjustment, while with the method I have described the eye is relaxed during the entire examination, due to the fogging with plus lenses and there is no attempt of the eye to readjust itself.

When both eyes have been given the proper correction for distance and with the correction still in place the eyes are examined for a possible phoria. If there is a phoria due to a lack of enervation, exercise with perhaps a prism given temporarily, or a muscle operation, is advised. If the phoria is due to an anatomic condition of the eye in which the fovea is out of alignment in its relation to the extrinsic muscle cone, or to a malposition of the eyes in the head, prisms are prescribed for constant wear for exophoria and hyperphoria, unless the phoria would require prisms of more than six diopters. In that case a muscle operation is advised. In my experience esophorias of the anatomic type do not produce discomfort. The correction of these phorias is important. A one degree hyperphoria causes much more trouble than a one diopter hyperopia. Lenses for near work should be of a strength suitable for the work to be done, as well as for the age of the patient; for example, for reading from fifteen to eighteen inches, up to 2.50 diopters; for piano or organ and for instructors who stand behind their pupils, the lenses should be intermediate between distance and reading, up to 1.50 diopters.

When reading glasses are added as bifocals, narrow segments should be used for those who wear their glasses primarily for distance and reading. For desk workers, bookkeepers, etc., wide segments are better. A very satisfactory bifocal for a class of workers represented by railway mail clerks is a large segment such as orthogon AA which has a large space for near work and still allows for distant vision. For librarians, attorneys and others who must consult titles on high shelves, a small segment of intermediate strength on the upper part of the lens is a comfort. For presbyopes who use head mirrors, a pair of glasses for office work with a duplicate of the lower segment placed at the upper part of the lenses gives clear vision without the necessity of changing glasses. Fused bifocals may be prescribed up to 1.75 diopters. For over 1.75 diopters a one piece lens should be used to eliminate chronic aberration. Flat top segments have no particular advantage. The frames must be so adjusted as to be comfortable, and the lenses fifteen millimeters from the cornea. The optical centers of the lenses must correspond to the interpupillary distance. The interpupillary distance for near work is the measurement to be used for hyperopes. For myopes one should use

the distant vision interpupillary distance. This is done to avoid extrinsic muscle strain.

If the distant potential difference is used for a hyperope of four diopters, the lines of vision pass to the inner side of the optical lens centers when the individual is doing close work, giving him an exophoria of 1.25 prism degrees. It is true that when using the glasses for distance with the potential difference for near vision, he has an esophoria of the same amount, but that esophoria will not cause any discomfort unless his abduction is unusually small.

Unless a patient has some pathologic condition of the eye, he should not be deprived of happiness by being told to refrain from using his eyes for near work. All eye strain is a muscle strain. A picture thrown on the retina from a near object does no more harm to the retina than one from afar. A disagreeable odor does the olfactory nerve no more injury than a pleasant one. The brain does not like the one, but there is no system of muscles to change the odor and hence we have no tired, painful noses from continued offensive smells. When the refraction is completed, the following four rules for close work with normal eyes are explained.

1. Hold work no closer than sixteen inches so that no more than approximately 2.5 diopters of focusing effort and a minimum of convergence is required.
2. Hold work squarely before the eyes so that only the direction of gaze and not the focal length is changed when the eyes travel from one point of the work to another.
3. Work in a well lighted room so that the ratio of illumination of foreground to background is no greater than five to one, which has been determined as the minimum to eliminate glare. Glare results not from high illumination but from low illumination of background.
4. Rest ten minutes of each hour's near work, the army's rule for resting the muscles of marching, since reading involves the use of muscles.

#### Discussion

**Dr. William F. Boiler, Iowa City:** Dr. Dean has given us a clear exposition of his methods of refraction on a broad basis. No two individuals do the same thing the same way, even to putting on their hats. The question of cycloplegia or non-cycloplegia is not before the house. It is rather a question of routine or procedure. In discussing this subject, a few definite principles are necessary, and this is true whether a cycloplegic is used or not.

1. Some knowledge of psychology. You must have some idea of the manner in which your observer (patient) thinks and responds. Some of your patients



are good reliable observers, others are very erratic and their changeability is not always due to ciliary spasm. Some observers honestly cannot look at a chart and consistently answer. The mistake of size for definition is a most common one and must be recognized.

2. Patience and infinite capacity for detail. In other words, "check and double check," as Amos and Andy say.

3. Have some definite routine for relaxation of the accommodation. If you are a good enough host to put your visitor at perfect ease and inspire confidence, the major portion of your problem will be solved. Dr. Dean evidently is a past master at this. The best method I have ever heard of for getting relaxation is that used by W. H. Bates of the "Perfect Sight Without Glasses" fame. In his book he states the fundamental principle as follows:

"Do you read imperfectly? Can you observe then that when you look at the first word, or the first letter, of a sentence you do not see best where you are looking; that you see other words, or other letters, just as well as or better than the one you are looking at? Do you observe also that the harder you try to see the worse you see?"

"Now close your eyes and rest them, remembering some color, like black or white, that you can remember perfectly. Keep them closed until they feel rested, or until the feeling of strain has been completely relieved. Now open them and look at the first word or letter of a sentence for a fraction of a second. If you have been able to relax, partially or completely, you will have a flash of improved or clear vision, and the area seen best will be smaller.

"After opening the eyes for this fraction of a second, close them again quickly, still remembering the color, and keep them closed until they again feel rested. Then again open them for a fraction of a second. Continue this alternate resting of the eyes and flashing of the letters for a time, and you may soon find that you can keep your eyes open longer than a fraction of a second without losing the improved vision. If your trouble is with distant instead of near vision, use the same method with distant letters. In this way you can demonstrate for yourself the fundamental principle of the cure of imperfect sight by treatment without glasses. If you fail, ask someone with perfect sight to help you."

Do you appreciate the psychology and insight of that advice. No matter what you think of the author, you must acknowledge he knows something of human nature. Smith\* gives as safe and sane a method as any I am familiar with. It is too long to be taken up at this place, but I earnestly advise you to read it. If you do not have the book at hand, I am sure Dr. Jeannette Dean-Throckmorton of the Medical Library will be glad to lend it to you.

4. The mechanical aids to refraction. I do not like the phoropter because it gives one the opportunity to hurry your patient, and that is fatal. Verhoeff's charts are intended to give a test object about which

the patient may have no preconceived idea of what he will see, and they are valuable. Personally I never have been able to use them. Variable illumination charts give me the most satisfactory results. The cross cylinder is a valuable aid within certain limits. You must remember Sturm's interval in order to appreciate the ease with which a wrong conclusion may result.

5. No discussion of refraction is complete without a word on prisms. I use more vertical prisms than any other; I practically never use a horizontal prism. The human eye, through the ages of use of the eyes quickly in the lateral and downward direction, have developed a set of muscles which are very efficient within reasonable limits. If the horizontal error is more than fifteen degrees base in or out, it had best be corrected with a graduated tenotomy or other type of muscle operation. I have patients wearing ten to eleven degree vertical prism with perfect comfort and always on one eye; the prism is never split between the eyes. If the error is greater than ten or eleven degree, vertical error, operative interference is best. I always put the prism before the eye which has the weakest convergence stimulus.

6. Last but of great importance is the balancing of the two eyes. In all cases of normal vision of each eye, the two eyes must be made to see the same, one with the other. When this is successfully done, the need for prism correction will often vanish after a few months with the glasses. It is important that the letter be seen the same size with each eye and that the color of the background of the letters be seen the same with each eye.

7. Nose. There is a definite relation between the nasal condition and the function of the external ocular muscles, especially the elevators and depressors of the eyes. This I do not understand, but I have found a five or six degree vertical error which has been uncovered by a two weeks occlusion, by Marlow's method, to change to the exact opposite type of error, or indeed vanish entirely on cocainization of the posterior palatine and vidian nerves.

Dr. Cecil S. O'Brien, Iowa City: We have practically abandoned the occlusion test. It was given up because of the fact that, as Dr. Boiler mentioned, there apparently was a tendency on the part of the occluded eye to deviate upward, i. e., there might be either a right or left hyperphoria, depending upon which eye was occluded. I was unable to explain this phenomenon and in view of such variations we gave up the test.

Dr. Gordon F. Harkness, Davenport: I have great respect for Dr. Dean and his conclusions. I have used the Verhoeff chart in very much the same way, but I am free to say I have not been able to go as far as he does, and I still retain, to a large extent, my faith in a cycloplegic. My patients seem more confused when asked to make a definite statement as to the angle of the axis of astigmatism than Dr. Dean's patients. I sometimes find variations in the axis in using the Verhoeff chart, not only before but after the cycloplegic has been used.

I have for years used the cycloplegic in a way

\*Smith, Dorland: The estimation of the total refractive error without a cycloplegic. Trans. Am. Acad. Ophthalmol. and Otolaryngol., 101, 1930.

which I think is heresy to a great many men. Dr. French a number of years ago presented a paper on measuring the cycloplegic effect of atropine and homatropine, and it was a very able paper. Of course, this is a practical variation from the stereotyped way of using atropine for two or three days to get the complete effect. I remember that in by far the largest percentage of cases Dr. French found he obtained the maximum effect within about two hours' time. For years we have done the majority of our refractions with atropine and have examined two hours after instillation. This has a practical side, where you have patients coming from surrounding territory and your time is limited. I also feel that in hyperopes, if we have the glasses before their eyes as the cycloplegic wears, they can do a great deal to accommodate themselves to a comfortable use of the glasses and prevent a return, perhaps, of muscular spasm.

Dr. Boiler's remark about equal vision, I think is all right to a certain extent, but we do see patients where there is unequal vision of a marked degree, and I think in these instances we should disregard it because we later find that the eye with poor vision, after it has worn a correction for a short time, will pick up and build up.

The psychology of refracting patients does enter into our work, and I sometimes wonder if we do not neglect that. For a number of years I had in my employ an optician who conducted an optical shop. He now has a prescription optical business in Cleveland, Ohio. I went into his place during the last meeting of the American Medical Association in Cleveland. I noticed at one side a little stand with two steps going up. At the side of the stand was a table. Built on that table was a music rack. On the table was a deck of cards. On the other side of the table was one of those things our mothers stuck needles in and kept them there. I said, "Lawrence, what is that?" He said, "Oh, that is a little thing I use. These patients come in with their prescriptions, and when they get through I have the presbyopes walk up the two steps and down, and I show them how to use the lower segment of their glasses, so as not to get into trouble. If it is a person who is musically inclined, I put them down at the music rack at just about the distance the ordinary musician places the music. If it is a bridge addict, I don't exactly deal them a hand, but I put some cards on the table. If it is an old lady, I hand her a needle and let her thread it." That is good psychology, and it is something we might use a little bit.

Dr. George C. Albright, Iowa City: I thoroughly believe in psychology, but I do not think most of us are ready to psychoanalyze a patient before we refract him. According to Dr. Malamud, a proper psychoanalysis requires in the neighborhood of three years. I differ from Dr. Boiler in that I like very much the use of the phoropter. The time that I am not consuming in changing lenses, I can use for psychology. Dr. Dean has quite properly emphasized mental as well as physical relaxation of the patient. I do not think it contributes very much to the pa-

tient's peace of mind to have you pushing a lens up in here and down there, skewing it around and jiggling the frame on the face in order to get the proper lens. I do find they are greatly relaxed if these changes can be made quickly, easily and painlessly, and allowing them time to estimate the value of the change that has been made. Fifteen years' experience with the phoropter has convinced me that it is a very satisfactory method of refraction.

Dr. Wayne J. Foster, Cedar Rapids: I want to mention the great time-saving procedure of putting a patient in the dark room and doing a very careful retinoscopy before anything else. It saves considerable time.

Dr. Harold J. McCoy, Des Moines: I would like to make a little confession. I was trained in refraction first under Dr. E. V. L. Brown of Chicago. At that time he was using atropine, putting in drops for three days, taking one eye at a time, so that he would not get too much disability. I asked him about short drops, so to speak, of homatropine, and he said he had used those for ten or twelve years but had never been satisfied with the refraction, so he used atropine. When I came to Des Moines they were using homatropine and cocaine, so I delved into that. I never was quite satisfied, so I began doing refractions without a mydriatic, studying up on it and testing several hundred cases with and without cycloplegics of various kinds. In other words, I worked at it a little while to see what I could learn. I used the retinoscope on the naked eye. I got a dollar rheostat to cut light down in a semi-dark room in which the pupil dilates fairly easily, and a very satisfactory examination can be done, in my estimation, in a rather short time. In other words, you can get your leads; then you work out the details, as probably all of you do. Those details are arrived at in your own individual way, but suffice it to say there is no one method of refraction that is adequate in all cases.

Regarding the phoropter and trial lenses, I think I can shift lenses faster than you can handle your phoropter. I do not believe that some of these fancy trial frames are very satisfactory. You need a simple one. Set the lenses in, shift them around, and be quick about it.

You can do satisfactory refractions with or without a mydriatic, if you work at it. As has been suggested, you will have to size up your case and satisfy yourself that the job is done well.

Whenever the various phorias present themselves, you should question the general medical situation of the individual. Many times some general or local ailment is present. We should be slow to prescribe prisms unless the phoria is definite, persistent and constant in degree.

Dr. Dean, closing: I agree with Dr. Boiler that we must have our patients quieted down. When an excitable patient comes into the office, the first thing she does is to twist around and say, "I am afraid I can't see what you want me to see, and I just know I can't answer your questions." If you tell her you are going to blur her vision and that you do not want



her to see clearly, and that she does not need to try, she will lose all nervousness. That is good psychology and is one of the chief values of the Verhoeff charts and method.

I imagine Dr. Boiler's trouble in using the Verhoeff charts is that he does not get the whole focus in front of the retina.

Dr. Harkness speaks of the use of atropine changing the direction of the cylinder axis. I have found this true, but when I have tested the eyes without atropine and found the direction of the axis and then with atropine find it changed, I have found it safer to prescribe the cylinder with the axis where it is found without atropine. I think the change is due to an unequal tonicity of the ciliary muscle and when the muscle is perfectly relaxed the direction of the cylinder axis is changed sometimes.

In regard to the cases suitable for prescribing prism, let me say that if you find a phoria which is due to a muscle unbalance or a lack of enervation, that is the time to go slow in prescribing a prism. There is another type of phoria which I call an anatomic type. I have had patients wear the same strength of prism for thirty-five years without a change in the amount of phoria. There is no case due to a lack of enervation in which the phoria would stay the same for thirty-five years. When you find an anatomic phoria you should correct it at once just as you prescribe cylinders for astigmatism; both are anatomic conditions and need correcting.

I read a paper on prisms at the American Academy in Philadelphia in 1921. In discussion Dr. Hawley of Chicago said he had been prescribing prisms for a good while. He said he had a patient, a horseback rider, who complained that when he met another rider, there would be two, one above the other. Dr. Hawley gave his patient prisms, base up for one eye and down for the other. The patient returned later saying that his glasses were perfectly satisfactory. Dr. Hawley said he looked at the glasses and found that the optician had put in the prisms wrong side up for each eye, but that the effect was good because it threw the upper horse so high his patient could not see it.

## IMPROVED MECHANICS IN MAGGOT THERAPY

J. JAMES DUFFY, M.D., Denison

Since the advent and the subsequent proving up on the practical aspects of maggot therapy there has been a great deal of investigation conducted upon the intrinsic and extrinsic substances of the maggots and how they might be extracted to render available some more simple procedure for their use, but little of positive value has been obtained in regard to improvements for using them as we find them, i. e., in their live state.

After an oral investigation carried out by interrogating those who have used this form of therapy, I found that it had very quickly fallen into dis-

repute with them because they were unable to control the maggots within the confines of the bone field; because the cumbersome sponge rubber gaskets and celluloid covers were difficult to keep in close apposition with the skin; because if they succeeded in keeping the cover and the gasket tight the wound would then fill up with the purulent exudate only to leak out through the gasket and run down under the patient thus producing a difficult problem in hygiene of the skin, not to mention the stench created in that sector of the hospital; because the adhesive tape used to hold the cover and gasket in place would become soiled and the skin beneath infected; because the usual semi-elevation of the member caused the exudates to run down to flood one end of the field while the other was dry; and for the further reason that the implantation of the maggots themselves constituted another problem vexing beyond words. In the latter problem the maggots of course arrive from the laboratory in a minimum amount of liquid and in order to remove them saline must have been added to suspend them long enough to transfer them to the infected field. If enough saline was used to make their transfer simple then there was an excess of liquid in the bony field; if a small amount was used many of the maggots were left adherent to the walls of the shipping container; if delay ensued during the implantation the maggots would meanwhile crawl out of bounds. Thus the whole task from the beginning to end became a cumbersome, incomplete, unsatisfactory, inefficient procedure, because the number of maggots was reduced and the field of action was restricted because of the above listed contingencies.

Having experienced all of the above difficulties myself I set about to simplify the procedure, to increase the per maggot efficiency by providing a feeding ground limited to the diseased bone tissue, to increase the mass action by getting all of the maggots into the field and to render the hygiene of the wound, skin, and patient practical.

Since using these immature forms I have therefore found it necessary to make some changes in the method of application, the method of preparing the field for each new batch, and in general to bring about the isolation of the field for action so that they would spend their time and energy in the war zone and not in the adjacent soft tissues. Since their period of useful stay is considerably limited by the anti-qualities which the patient's body builds up against them, it becomes apparent that we must keep their activities limited as largely as possible to the diseased bone tissue if we are to obtain the maximum benefit from maggot therapy. In this brief article I wish to point out those im-

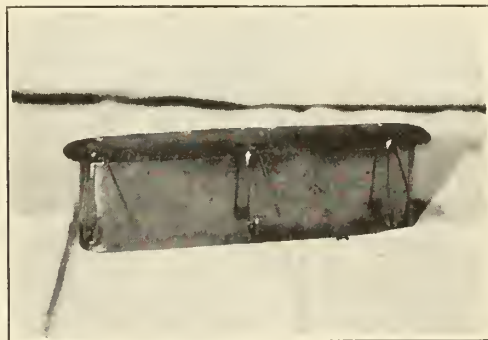
provements which I have devised. Mechanical details, difficult to describe, will be clarified by illustrations.

The operation for the drainage of the osteomyelitis is carried out with radical procedure to expose the entire involved field. A wide ditch is either chiseled or sawed so as to expose the medullary canal, and the bone chips are removed from the field. Personally I prefer the chiseling because I can see with each chip the exact condition of the bone into which I am progressing. Cultures are made of the material both from the chips and from the medullary canal. (Culture material should be planted immediately without permitting any chilling of the samples). The usual curettement of the dead bone is carried out and the wound is packed widely open with hot saline packs which have been wrung dry. A tight bandage is applied and other supportive measures incident to the immediate postoperative relief of symptoms are carried out. Twenty-four hours later the packs are removed and the soft tissues are now found to be molded apart from the bony field. Any point of hemorrhage is carefully checked so that the field is dry, and the time for implantation of the maggots is at hand. It is at this juncture that most of the technical difficulties arise, first in getting the maximum number of maggots into the field, and second in keeping their field of action limited to the bone. Since the bone bed is the most dependent it naturally fills with secretion first and thereby impedes the direct action of the maggots. We must therefore have some manner of keeping the secretions limited to their minimum.

The first improvement which will be found to facilitate the efficient form of treatment is a metal collar which holds the soft tissues in their recently molded position thus keeping them from coapting over the bone trough and thereby keeping the infected bone field freely accessible to the maggots. The collar which I devised is a simple strip of pure sheet copper which the tinner prepares for the necessary size. The edge of one side of this strip is folded over to produce a reinforced smooth edge which will occupy the position next to the bone. The other edge, about one-fourth inch wide, is folded over only to a ninety degree angle thus leaving a shelf like effect. The ends of the band are bent so as to form a locked joint when the band is bent into the hoop shape. The strip is now bent so that the whole takes the shape of a hoop with the edges on the outside. The length must first have been determined and an inch at each side allowed for the width of the collar. Nicks are then made through the edge so as to permit the curves at each end to

form freely without any puckering of the metal. The object of this shelf will become apparent directly. A piece of strainer screen not less than 90 mesh is cut to fit the top of the collar (i. e., our one-quarter inch shelf), and is fastened down with a light ring of solder, after which the collar is ready for electroplating. A silver plating is applied by electroplating process, using double silver cyanide applied at two amperes and six volts. This protects tissues and maggots from any copper chemical actions. All of the above technical difficulties are now needless as The Zimmer Manufacturing Company of Warsaw, Indiana, manufactures the cages in pairs made from stainless steel; in pairs so that one is always sterile for changing to a new batch of maggots; in different sizes to accommodate the varied lesions to which they may be applied.

My first experience with these maggots and their handling as outlined by Lederle Laboratories was that it was hard to get them into the field without losing a great many of them, and while one was trying to get the remaining ones out of the original container many of the ones in the implanted field were escaping. Many were lost, and

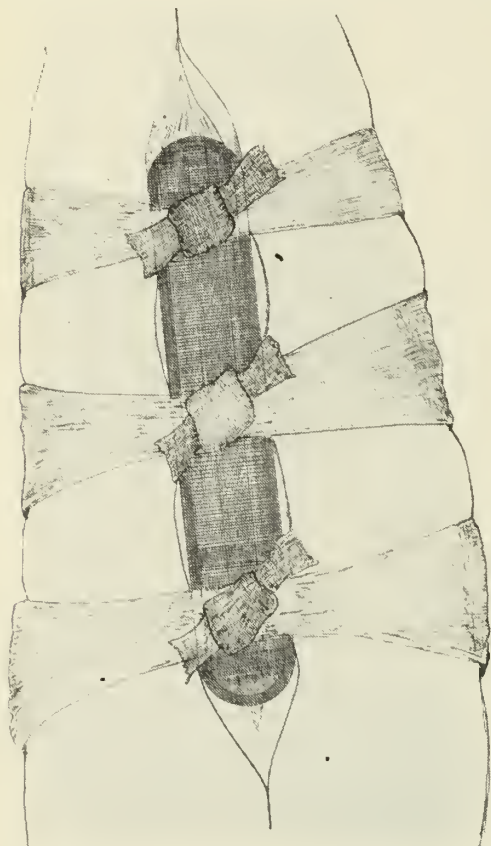


the efficiency of the remaining ones was diluted because many times they fed on the soft tissues which were more accessible than the deep lying bone. These difficulties I have completely overcome and in addition I have cut down the time required for changing batches.

The packs are now removed and the field is dry and ready for the first implantation. The appropriately sized collar is tried for fitting and is found to be snug enough to be held in place by the soft tissues. Sometimes a metal shoe horn is necessary to slip the other end of the collar down into the tissues after the one end has been butted into the other end of the wound down on the bone, directly over the trough. The collar now being appraised the right size, it is



dried with sterile gauze after having been rinsed with sterile saline, and is then given a coating of sterile alboline. The container of sterile maggots is taken from the icebox and to it is added very cold saline. The cold sterile saline keeps them inactive so that they are less likely to crawl away, if any delay intervenes. A copious amount of the



Anterior view of cage tied into wound. Edges of wound are held firmly against cage by circular gauze bands.

cold saline is added until all are removed from the edges of the bottle. In the meanwhile the bottle is continuously agitated in a rotary manner to keep them free of the walls. With the collar held in the left hand upside down in strainer fashion the maggots are quickly poured into the former and are then found in the bottom with the saline completely drained away. The collar is quickly inverted and slipped into the position over the bone where it is firmly held by the soft tissues. Wide circular gauze bands are applied around the member to hold this firmly in place. Nurses are instructed that if tightening becomes necessary they must slip something under the band and not untie it, in order to avoid an accident or the premature releasing of the maggots.

To me the daily care of the wound is so much better than the old method that there is little comparison. Regular dressings are applied against

the collar over the soft tissues and these can be changed frequently without interfering with the field inside the collar. These dressings take up the secretions and, probably by capillary attraction, they keep the field within the collar drained also. No doubt the muscle tonus produces enough motion to permit the escape of fluids around the edges. The patient is free from that nasty manure pile odor so characteristic of this type of case. No adhesive is necessary to protect the skin edges as these are covered by the dressings.

The final improvement in technic is the manner which I use to free the wound from the old maggots. Its greatest asset is perhaps in time. The collar is removed and the wound filled with three per cent hydrogen peroxide and immediately the foam floats them all out of the wound. This peroxide is continued until it ceases to foam and at this time is followed by saline irrigation. Since the peroxide is such a feeble germicide and because its stability is so limited we have no need to worry about it affecting the new maggots. It has the good mechanical effect of cleansing out the remaining debris as the now fattened maggots are not as industrious or effective as when they were first instilled.

To those engaged in general surgery or specialized surgery the above improvements will be found to conserve time, and above all to increase the efficiency of the maggots.

#### THE FINLEY HOSPITAL CLINICOPATHOLOGIC CONFERENCES

##### BILATERAL CONGENITAL DISLOCATION OF THE HIP

DONALD C. CONZETT, M.D., Dubuque

Congenital dislocation of the hip, though recognized since the days of Hippocrates, had been considered a hopeless deformity up to within the past half century. In 1826 Dupuytren, after dissections and anatomic studies, accurately described the lesion but concluded that corrective treatment was impossible. This situation existed until Hoffa in 1890, by means of open operation, restored a dislocated head to the acetabulum and secured an anatomic reposition and consequent cure. Shortly thereafter, using Hoffa's work as a guide, Lorenz was able to secure reductions through manipulative measures, and thus was introduced the popular named "bloodless operation," modifications of which are generally accepted today.

The etiology of this entity is obscure as is the disproportion in the incidence between the sexes. Eighty-eight per cent according to Moore occur among girls. Theoretically, this may be due to the wider female pelvis and consequent laxity of the ligaments about the joint. Single dislocation occurs twice as frequently as the bilateral lesion. The diagnosis is seldom made before the child begins to walk, but shortly thereafter the "duck-waddle" gait, as well as the prominence of the buttock and increasing lordosis, become noticeable. The diagnosis is made complete by x-ray examination which in addition to demonstrating the upward and backward displacement also shows the configuration of the acetabular cavity.

The treatment of congenital dislocation requires considerable time and patience on the part of both patient and surgeon and the parents should early be appraised of the proposed regimen. Assurance of a cure depends largely on the age of the child and, of course, a bilateral lesion offers a more serious problem than the unilateral type of deformity. Beyond the age of six years the possibilities of success are poor through the use of the closed method. The ideal period is between two and four years. After that age one of the open types of reduction offers more chance of success. Whitman briefly lists the principles of the Lorenz operation as follows: "The first step in the typical operation is to overcome the resistance of the tissues, namely of the capsule and of the long muscles that have become structurally shortened in accommodation to the upward displacement of the head of the femur. The second step is to reduce the dislocation or rather to force the head of the femur over the posterior inferior border of the acetabulum. The third is to increase the security of the articulation by stretching the anterior border of the capsule. The fourth is to fix the parts securely in a plaster splint."

The details of treatment need not be listed since they are available in any standard orthopedic text. Several factors, however, should be enumerated. The method is not without danger. A general anesthetic is essential and the complete manipulation and application of the plaster casing requires the better part of one hour. The general condition of the child, therefore, must be known prior to treatment. Accidents may occur during manipulation. Lorenz reports eleven fractures of the neck of the femur and fourteen cases of paralysis in a series of 450 cases. Great care, therefore, must be used in attempting reduction. It is our custom to do the reduction on the fluoroscopic table. Though the degree of posterior displacement cannot be determined, and considerable dis-

tortion exists under the screen, yet a certain amount of correction can be visualized. When extreme abduction has been secured the posterior dislocation can be more easily palpated and thumb pressure will frequently lift the head over the posterior acetabular rim with an audible snap that insures reduction. The plaster casing should be well padded and strong posteriorly, as the child spends a good portion of his time in the sitting position. We further encourage the use of a kiddy-car when reduction is complete. By use of the feet, a pressure is exerted through the femoral head which aids in deepening the acetabular cavity and in addition helps to keep the child amused. The casings are changed every two or three months and the degree of abduction gradually lessened, making certain with each change of cast that the position is maintained. The time required for treatment varies with the individual but usually requires casting for a period of six months to a year, and inspection and x-ray check for a considerably longer time.

#### CASE REPORT

R. B., a boy three and one-half years of age, was first seen in the office on June 10, 1936. For the past six months he had been having osteopathic treatments for shortening of the legs. The diagnosis was easily made for the "duck-waddle" gait, prominence of the abdomen and lordosis were classical. The other children in the family were normal. There was no history of birth injury. He did not walk until he was sixteen months of age.



Fig. 1. Congenital bilateral dislocation of femur. Note poorly developed acetabular cavities. The femoral heads are well above the acetabuli.

As he gained in weight, walking became more difficult. An x-ray examination of the pelvis verified the diagnosis (Fig. 1). The following day under



ether anesthesia the Lorenz operation was done and the child was immobilized in plaster (Fig. 2). Three days after trimming the cast, the child went



Fig 2. Following non-operative reduction. Both femoral heads are opposite acetabular cavities.

home. On September 21 the casing was removed and with further correction, a new plaster dressing was applied (Fig. 3). At this time it was noted



Fig. 3. Photograph of the patient taken at home. He is able to walk freely about the yard on his kiddy-car.

that the left head was slightly posterior, but, with the marked muscular relaxation which had been obtained, the head was slipped over the posterior acetabular margin. Though the position may seem too productive of discomfort, the child is perfectly happy and goes about freely on his kiddy-car.

#### COMMENT

Congenital dislocation of the hip is a curable lesion if seen early. When the deformity is bilateral the prognosis is less certain of success. The Lorenz manipulation is the safest method of reduction up to four years of age, but there are complications which should be clearly understood. Early diagnosis and adequate treatment will minimize the possibility of a crippled existence in this not uncommon deformity.

#### CLINICAL NOTES FROM THE COLLEGE OF MEDICINE

##### REGIONAL ILEITIS

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In 1932 Crohn, Ginzburg and Oppenheimer<sup>1</sup> described fourteen patients with a previously unrecognized disease of the small intestine affecting the terminal ileum, mainly in young adults, and characterized by subacute or chronic necrotizing and cicatrizing inflammation. They considered the condition to be a pathologic and clinical entity. Ulceration, accompanied by a very marked connective tissue reaction in the walls of the involved portion of the intestine often lead to stenosis of the lumen of the terminal portion of the ileum. The end stages of the disease were commonly associated with the formation of multiple fistulas between the ileum and various intra-abdominal organs, abscess cavities, and the external abdominal wall. Barger<sup>2</sup> and his associates reported a series of eighteen similar patients and agreed with the findings of Crohn, et al. In 1934 Crohn<sup>3</sup> reported twenty-six additional cases and then stated that this disease may occur in other than terminal portions of the ileum.

Harris<sup>4</sup> and Crohn<sup>3</sup> independently reported cases in which the jejunum was the site of the same type of pathologic process, and Crohn<sup>3</sup> has observed several patients in whom there was involvement of multiple areas with long strips of normal ileum intervening. In addition to these two larger series of cases, there have been a number of smaller series and individual cases reported by a number of observers. A total of about seventy-five cases of this disease has been reported<sup>5, 6, 7, 8, 9, 10</sup> under the names of terminal ileitis, regional ileitis, chronic ulcerative ileitis, or chronic cicatrizing enteritis. Regional ileitis, a

name suggested by Bargen, appears to be the most accurately descriptive term and is the one most commonly accepted.

The etiology of regional ileitis has probably not been established. Tuberculosis and syphilis have been suspected, but all the available evidence indicates that neither of these is the cause. In approximately half of the original fourteen patients reported by Crohn and the eighteen subsequently reported by Bargen, at least one or more abdominal operations, usually an appendectomy, had previously been performed without amelioration of symptoms. In patients operated upon during an early stage of the ileitis, thickening and tumor-like, massive inflammation of the mesentery and small intestine was noted. The appendix was usually considered to be subacutely inflamed, both grossly and microscopically and, therefore, the true significance of the findings in the terminal ileum was not suspected. Crohn, however, believes that the process never goes beyond the ileocecal valve and therefore never involves the appendix directly.

Corr and Boeck<sup>11</sup> reported the finding of *Entamoeba histolytica* in the stools of a patient with symptoms suggesting regional ileitis but feel that this was purely coincidental for the following reasons: lesions of the small bowel due to this parasite have never been reported; the colon, rectum and liver were entirely free of any evidence of amebic invasion; at necropsy the amebae could not be found on histologic examination of the involved ileum.

Felsen<sup>12</sup> has recently observed five cases which in retrospect were clinically compatible with a diagnosis of terminal ileitis, and considers the disease to be the result of bacillary dysentery. At operation, the ileum for a distance of about thirty centimeters proximal to the ileocecal valve was thickened and inflamed, and mesenteric adenitis was found. In one patient stool cultures and blood agglutination studies showed an atypical Flexner strain of *Bacillus dysenteriae*. In two others, the Sonne-Duval type of *Bacillus dysenteriae* was found. In his opinion, the reason the specific etiology of this infection is not recognized in the chronic stages is that secondary nonspecific infection occurs, *Bacillus dysenteriae* disappear, and the agglutination titer falls to normal levels.

#### CLINICAL FEATURES

Young adults comprise the largest number of the reported cases. In one series the ages ranged from seventeen to fifty-two years, the average being thirty-two years. Only two patients older than forty years were found. The male sex is predominantly affected, various observers reported sex ratios between 2:1 and 5:1. No predisposing

cause has been discovered. In general, the patients run a typical course. Most of them are ill for several months to years before a correct diagnosis is made. The symptoms and signs depend upon the stage of the disease when the patient is seen, and five such stages have been recognized.

Early, the signs and symptoms are those of acute intra-abdominal inflammatory disease. Inasmuch as the disease is most often found in the terminal ileum, the signs and symptoms are in the right lower quadrant of the abdomen. For this reason, it is very difficult or impossible to distinguish preoperatively the early stage of regional ileitis from acute appendicitis. There is generalized colic, marked tendency for the pain to localize in the right lower quadrant, pyrexia of 101 or 102 degrees, and a moderate leukocytosis. At operation there is a greatly thickened, red, and blotchy terminal ileum, with marked edema of the surrounding tissues and a slight plastic exudate on the ileal wall. The thickened and edematous mesentery often contains numerous large lymph glands, and a small amount of clear fluid may be present in the abdomen. The future course of the disease at this stage cannot be predicted because although there may be resolution, a majority of the patients progress to the chronic stage.

The second stage of the disease is characterized by the symptoms of an ulcerative enteritis. There is colicky pain of a diffuse nature and a tendency to diarrhea with two to five daily pussy, mucoid, and bloody stools. There is slight, although constant fever, an anemia (the hemoglobin is often as low as 30 per cent), and loss of weight and strength. The disease at this stage, therefore, resembles idiopathic ulcerative colitis; but is not accompanied by the perirectal abscesses or perianal fistulas, so commonly complicating ulcerative colitis, because the rectum and colon are never involved in regional ileitis.

The next stage of the disease is characterized by symptoms produced by stenosis of the bowel and it is during this stage that most of the patients are commonly encountered. The symptoms are those of subacute small intestinal obstruction, as evidenced by violent cramps, borborygmi, attacks of vomiting, and alternating diarrhea and constipation. There is visible peristalsis and intestinal erection, and a palpable mass in the right lower quadrant is practically always present. Occasionally the stenotic phase occurs as the primary manifestation of the disease but usually the symptoms of this stage may not occur until several years after the onset of the disease.

The fourth stage of the disease is characterized by persistent internal and external fistulas. The latter have usually resulted from operations for



the drainage of suspected appendiceal abscesses and cannot be cured by simple excision as is the case with the ordinary fistula which occurs in this region as the result of a ruptured appendix. Also, they terminate in the ileum and not in the cecum, as is the rule with appendiceal fistulas. Crohn believes that persistent external fistulas, in the excised walls of which tuberculosis cannot be found, are due to regional ileitis until proved otherwise. The marked persistence of these fistulas may be contrasted to the tendency of appendiceal fistulas to heal spontaneously. The sigmoid colon often becomes adherent to the necrotizing ileum, and fistulas between these two hollow viscera develop. When this occurs the pain is very frequently experienced in the left lower abdomen so that a palpable mass in the left lower abdomen may be confused with primary disease of the rectosigmoid area.

In the late cases a tender, firm, somewhat fixed mass, the size of a small orange, in the right iliac region can usually be felt. This mass is composed of hyperplastic ileum, the stenotic and inflamed ileocecal junction and a section of adherent colon or sigmoid. Localized suppuration in the mesentery or elsewhere, resulting from fistulas, may contribute to the mass. Weakness, rapid and progressive loss of weight, and anemia, moderate to severe, practically always occur.

#### PATHOLOGY

There is little detailed knowledge available concerning the pathology of the early stages of this disease. This is due to the infrequency with which it is diagnosed in the early stages and the lack of resected specimens for study. Patients operated upon for appendicitis, who subsequently developed the late stages of regional ileitis, have been described as showing, at the time of operation, a terminal ileum which was thickened, soggy and edematous, with a blotchy red serosa. The mesentery of the terminal ileum is also thickened and contains numerous hyperplastic glands. Owing to the possibility of spontaneous resolution, resection has never been performed at this stage and therefore we have no knowledge of the intra-intestinal changes. The oldest lesions are usually found just oral to the ileocecal valve. Ulcers of the mucosa about one centimeter in diameter lying in the long axis of the intestine on the mesenteric border are often found separated by normal mucosa from the main hypertrophic mass and are considered to be the primary lesions of the disease. The characteristic, hypertrophic process is usually limited to the distal twenty-five to thirty-five centimeters of terminal ileum and shades off proximally into normal mucosa. The normal intestinal folds are dis-

torted and broken up and a series of small linear ulcerations are nearly always present in a groove on the mesenteric border of the bowel. The submucosal and muscular layers of the bowel are the seat of marked inflammatory hyperplastic and exudative changes. As a result, the wall of the bowel becomes enormously thickened and greatly encroaches upon the lumen. In the late stages the exudative is replaced by a fibrotic and stenosing process. The serosa loses its gloss and frequently exhibits tubercle-like structures on the surface. Tendency to perforation is a marked feature but seldom occurs into the free peritoneal cavity. However, when this occurs, a walled off abscess results. The chronic nature of the process favors development of adhesions to omentum, parietal peritoneum, sigmoid or cecum. No specific microscopic features can be demonstrated, but stained sections show different degrees of acute and chronic inflammation with variations in predominance of polymorphonuclear, round cell, plasma cell and fibroblastic elements. In some cases the presence of giant cells is a striking, but not essential feature of the condition. Crohn believes these are foreign-body giant cells which result from inclusion of vegetable material in the ulcer and that they are not to be considered indicative of tuberculosis. Careful pathologic, cultural and animal inoculation studies, particularly by Crohn et al, have failed to show any evidence that regional ileitis is due to tuberculosis, actinomycosis, Hodgkin's disease, lymphosarcoma, or syphilis. In none of his cases has there been an associated active pulmonary tuberculosis or a positive Wassermann reaction.

#### DIAGNOSIS

In general, regional ileitis must be differentiated from diseases which produce a mass in the right iliac region, particularly when accompanied or preceded by fever and diarrhea. The differentiation from nonspecific ulcerative colitis, the disease most commonly confused with regional ileitis, can usually be made by sigmoidoscopy and the roentgen findings following the barium enema. In those cases of ulcerative colitis, however, which involve only the proximal segments of colon without affecting the rectum and sigmoid regions, this differentiation is difficult. However, it is only in the more severe cases of ulcerative colitis that the process involves the terminal ileum, and even in these cases only a maximum of two or three inches of distal ileum is involved. In regional ileitis, on the other hand, all of the damage is proximal to the ileocecal valve. Ileocecal tuberculosis, lymphosarcoma, intestinal or mesenteric tuberculosis, Hodgkin's disease, sarcoma of the intestines, and

actinomycosis of the cecal region, are some of the diseases which should be considered in attempting to establish a diagnosis of regional ileitis. It is desirable, also, to consider regional ileitis in the differential diagnosis of all atypical inflammatory or malignant conditions of the colon. Inasmuch as early resection of the involved bowel at this stage is the treatment of choice in both conditions, it is undesirable to delay operative attack while waiting for an accurate diagnosis.

Although the diagnosis in rare instances may be made on clinical grounds, roentgen study of the colon with the barium enema should always be done. This is of value in two ways: the colon is most often found to be normal in regional ileitis and a normal colon tends to exclude ulcerative colitis. If, in addition to the usual procedure, the barium is made to regurgitate into the terminal ileum, the abnormal findings characteristic of regional ileitis may usually be seen provided the disease be restricted to the terminal ileum, as is usually the case. In the original roentgenographic studies of these patients by Crohn, the barium enema was not considered to be of value except when the result was negative. He relied on frequent observations of the barium motor meal, following its downward course to the diseased portion of the ileum. Bargaen, however, believes the barium enema with regurgitation into the ileum to be the more valuable procedure. Whether the motor meal, barium enema, or both are employed, the pathognomonic sign of this disease is a markedly narrowed ileum shown by an extremely narrow column of barium which extends usually over eight to twenty inches of the involved gut. This narrow stream of barium in the small bowel as shown roentgenographically has been referred to as the "string" sign and is said to be the most valuable single item of evidence in the diagnosis of the disease. During the late stages a flat film of the abdomen may show the usual findings of intestinal obstruction; namely, dilated loops of ileum with fluid levels.

#### TREATMENT

Various observers have generally agreed upon the proper treatment, particularly of the late stages, when the disease is most often diagnosed. It is thought that medical treatment of any sort is purely palliative and more or less futile so that surgical intervention with resection and anastomosis is the treatment of choice. Some patients, however, present such marked involvement of organs other than the intestines that some type of simple ileocolostomy without resection must be relied upon for relief. The necessity of perform-

ing the anastomosis of the ileum at a point sufficiently removed from the diseased portion has been emphasized. Unless this is done, healing does not occur and subsequent fistula formation is very common. Crohn and his co-workers feel that the operation of choice in terminal regional ileitis consists in the division of the ileum three feet from the ileocecal valve, closure of both ends of the divided ileum, and a side to side ileotransversostomy. Whenever it is reasonably possible, however, the diseased portion of the ileum should be resected.

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#### BUREAU OF HUMAN HEREDITY

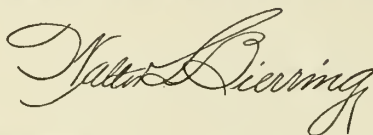
The object of this bureau is collection on as wide a scale as possible of material dealing with human genetics. Later, the task of analyzing and distributing the information will be added. The bureau is directed by a council representing medical and scientific bodies in Great Britain. It is affiliated to the International Human Heredity Committee, which ensures cooperation in all areas where research is proceeding.

The council would be grateful to receive all available material from institutions and individuals, furnishing well-authenticated data on the transmission of human traits whatever these may be. Pedigrees are particularly desired; twin studies and statistical researches are also relevant. As research workers and others who send in material may in some cases wish to retain the sole right of publication (or copyright) those who so desire are asked to accompany their material with a statement to that effect. Material should be given with all available details in regard to source, diagnostic symptoms and the name and address of the person or persons who vouch for accuracy. All such details will be regarded as strictly confidential.

Announcements in regard to the services undertaken by the bureau will be published from time to time. Communications should be addressed to the Bureau at 115 Gower Street, London, W.C.1, England.



# STATE DEPARTMENT OF HEALTH



## CONTROL MEASURES AGAINST SYPHILIS

There has been in recent months a renewal of interest in syphilis and in the attack on this disease. Under the leadership of Thomas Parran, M.D., Surgeon General of the United States Public Health Service, steps are being taken in all of the states to render control measures more effective with the purpose of reducing insofar as possible, the morbidity and mortality rates, which until now, have kept syphilis at the head of the list of communicable or infectious diseases.

O. C. Wenger, M.D., Surgeon, United States Public Health Service, was in Iowa, October 28 through November 2, to advise with physicians and health officials of the state regarding syphilis. On the evening of October 29, Dr. Wenger addressed the Iowa State Conference of Social Welfare in Des Moines on the subject: "Care and Control of Venereal Disease." During his stay in Iowa, Dr. Wenger visited the State Hygienic Laboratories and University Hospitals at Iowa City, conferred with officials of state institutions at Marshalltown, Woodward and Mount Pleasant, and with interested physicians, nurses and others in Des Moines, Cedar Rapids and Burlington. Dr. Wenger has made similar visits to other states.

A symposium on syphilis was presented to the health officers, epidemiology and laboratory sections of the American Public Health Association, at the Sixty-fifth Annual Meeting, held in New Orleans, October 20-23, 1936. Administrative aspects of syphilis were presented in a paper by J. N. Baker, M.D., State Health Officer of Alabama. George H. Ramsey, M.D., Assistant Commissioner for Preventable Diseases, New York State Department of Health, discussed epidemiologic aspects and A. H. Sanford, M.D., Mayo Clinic, Rochester, Minnesota, laboratory aspects of syphilis. The discussion was opened by Thomas Parran, M.D., Surgeon General, United States Public Health Service, Washington, D. C.

## *Iowa's Part in the Struggle Against Syphilis*

One of the most encouraging things about syphilis, is that specific remedies are at hand with which to bring about arrest and apparent cure in a large percentage of all patients, whose condition is recognized early and who receive adequate treatment. According to clinicians and syphilologists, adequate treatment calls for at least twenty treatments of arsphenamine and twenty of bismuth, the latter administered intramuscularly. Another encouraging feature is that funds are available at this time through the United States Public Health Service, making possible more effective carrying out of the necessary control measures. A third heartening aspect is the interest of physicians and their willingness to enlist in continued efforts to limit the spread of syphilis. In brief, the program in Iowa centers attention upon the need for:

1. More complete reporting of cases.

As pointed out in the August, 1936, number of the JOURNAL (pages 481-482), the reporting of syphilis in Iowa, is very incomplete. In order for a program to be effective, we must realize the extent of the problem. More complete reporting will help greatly in providing knowledge regarding the incidence or prevalence of syphilis in this state. In connection with reporting, it is desirable that time of exposure and of onset of symptoms be stated, so that early and late cases may be reported as such.

2. Supplying of arsphenamine and bismuth.

The State Department of Health agrees to forward a supply of neoarsphenamine and bismuth for use in cases of syphilis reported in the early stages.

3. Investigation of early cases.

It is desirable that information relative to the source of infection in reported cases be as complete as possible and that follow-up work be carried out by physicians and nurses to determine contacts, these to be placed under medical supervision.

4. Discovery of new cases.

This work is dependent largely upon routine taking of blood specimens and the Wassermann test.

5. Adequate facilities for treating the indigent.

In some of the counties, this work is already well organized; extension of similar facilities to other counties is desirable.

6. Education regarding means of control and prevention.

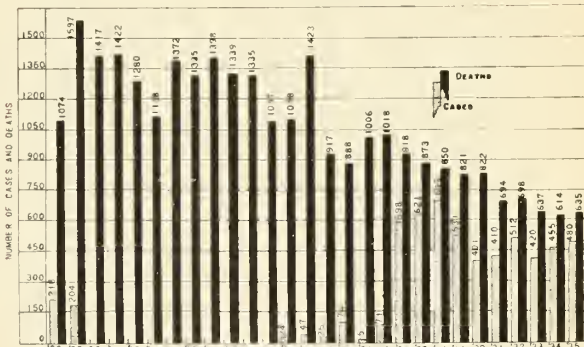
Physicians desiring a copy of a reprint entitled "Standard Treatment Procedure in Early Syphilis, A Resumé of Modern Principles," will receive such copy on request from the Iowa State Department of Health, Des Moines, Iowa.

TUBERCULOSIS THROUGH THE YEARS

Reports of recorded cases of and deaths from a communicable disease assume increasing significance and value through the course of years. The steady downward trend of mortality due to tuberculosis is strikingly apparent when the total annual deaths covering a period of twenty-eight years are shown in graphic form. (See the accompanying bar diagram, Fig. 1.) As compared with the yearly mortality records, reported cases of tuberculosis (stippled bars) are woefully inadequate and for certain years entirely lacking. Information on which the diagram is based was obtained in part from biennial reports of the Iowa State Department of Health. Although the first biennial report of the department covered the year 1880, records of annual tuberculosis morbidity and mortality in the state do not antedate 1908. During the decade 1910-1919, there is no record of any cases having been reported. (Fig. 1.)

Attention has already been directed to the fact

TUBERCULOSIS CASES AND DEATHS IN IOWA FOR THE 28-YEAR PERIOD 1908-1935



that in past years, the number of reported cases of tuberculosis in Iowa has been considerably below the annual number of deaths from the disease. The minimum standard calls for the reporting of at least two cases of tuberculosis for each death which occurs during the course of a year. For example, if 600 Iowa persons die of tuberculosis in 1936, reported cases of the disease for this year should total at least 1,200. A method has been instituted with the purpose of obtaining more complete reporting of cases by attending physicians. The method consists of forwarding a letter to physicians who receive a report from the State Hygienic Laboratories, indicating the presence of tubercle bacilli in a sputum specimen. The letter and enclosures stress the need for the reporting of active cases of pulmonary tuberculosis and make available to the physician attractive literature obtainable from the Iowa Tuberculosis Association. The response to the above mentioned letter on the part of physicians has been gratifying. It is entirely possible that reporting of tuberculosis in Iowa may now approach and possibly exceed the minimum standard of reporting.

PREVALENCE OF DISEASE

	September, 1936	August, 1936	September, 1935	Most Cases Reported From
Diphtheria .....	13	13	68	Black Hawk, Osceola, Polk
Scarlet Fever .....	93	79	152	Woodbury, Black Hawk
Typhoid Fever .....	15	22	27	Dubuque, Polk
Smallpox .....	11	7	3	Woodbury
Measles .....	9	3	7	For State
Whooping Cough .....	41	50	51	Black Hawk, Lee
Cerebrospinal Meningitis .....	2	8	1	Black Hawk, Greene
Chickenpox .....	11	15	28	For State
Mumps .....	17	28	66	For State
Poliomyelitis .....	24	6	15	Polk
Tuberculosis .....	59	42	42	For State
Undulant Fever.....	12	15	6	For State
Syphilis .....	187	88	135	For State
Gonorrhea .....	127	184	227	For State



# The JOURNAL of the Iowa State Medical Society

ISSUED MONTHLY

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RALPH R. SIMMONS, Editor.....Des Moines

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## IMMUNIZATION PLANS IN IOWA

Diphtheria immunization has been under way in the United States for the past fifteen years, but only recently has a greatly enlightened public permitted an equally aroused medical profession to start an active campaign to eradicate this wholly unnecessary disease, which in the past, carried an alarmingly high mortality rate. Numerous reports during the last two or three years reveal the fact that the profession is awake to the seriousness of this problem. Intensive campaigns, designed especially to reach the age group, six to twenty-four months, have been conducted in many states, and Iowa is well toward the front in planning and carrying out effective measures to prevent diphtheria from exacting its previous high toll of infant lives.

When the Social Security Act was drafted, an important feature was a provision for immunizing children against disease. In Iowa this immunization program has been confined to diphtheria, and still further limited to those rural districts of the state which showed the highest death rates from the disease. The work, which is conducted under the direction of the State Department of Health in accordance with the outline printed in the August issue of the JOURNAL, has already been completed in the following counties: Adams, Appanoose, Dallas, Davis, Decatur, Keokuk, Louisa, Lyon, Madison, Mills, Monona, Monroe, Page, Polk, Poweshiek, Ringgold and Shelby. The number of children immunized in these counties totals 6,989, and the result has been a decrease of 58 per cent in the number of cases reported for 1936 as compared with the corresponding period for 1935. This program is in the process of being completed in Audubon, Crawford, Hancock, Harrison, Winnebago, and Woodbury coun-

ties, where 2,930 children have been immunized. The decrease in the number of cases in these counties is only fourteen per cent.

As mentioned above, this procedure reaches only those children in rural areas of the state. In Polk County, the Des Moines Academy of Medicine and Polk County Medical Society, and the Parent-Teacher Association, with the cooperation of the City Health Department, the Public Health Nursing Association, and the School Nursing Bureau, have recently launched their second annual campaign to eradicate diphtheria from Polk County. Their goal is to immunize two-thirds of the 3,000 infants born in Polk County every year. To this end a number of physicians agreed to inoculate for one dollar every child between the ages of six months and two years, who is brought to their offices, Saturday mornings from eleven to twelve o'clock, on October 31, November 7, 14, 21 and 28. Well written pamphlets have been circulated among parents of this preschool age group, pointing out the wisdom of early immunization, and urging each parent to take advantage of this opportunity of safeguarding his child's future welfare.

We would urge physicians in other cities and counties in Iowa to investigate the diphtheria situation in their immediate vicinity and to determine the advisability of inaugurating some such program. The January, 1935, issue of the JOURNAL carried an outline of the Council Bluffs plan of immunization which was conducted most successfully by the combined efforts of all the physicians of that city. It is believed that these two examples constitute the only movements toward a mass program of immunization originating within the local county societies. Approximately 3,800 children have been immunized in Keokuk, Fort Madison, Ottumwa, Oskaloosa, Cedar Rapids and Muscatine where the physicians have cooperated with the State Department of Health under a modified form of the two plans already discussed.

Last year the number of reported cases of diphtheria for Iowa totaled 599, as compared with 287 reported cases from January through October of 1936. The number of deaths from diphtheria during 1935 was 56, while deaths recorded for 1936, from January through August, reach only sixteen. With wholehearted cooperation from the medical profession, the federal government, and various public health agencies, there is no longer any excuse for a death from this disease, and it is to be hoped that parents in Iowa will be fully cognizant of the benefits to be derived from an educational program of this nature. It is important for physician and patient

alike to recognize the educational element in this approach to the problem of preventing diphtheria. None of these programs has been advocated as a permanent procedure, but rather plans to be followed until the public automatically accepts immunization as one of the necessities of life. The burden of proof falls on the physician, and he should accept the task with a full appreciation of the duties and privileges involved in so great an undertaking.

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### MECHANIZED DISPLAYS FURTHER HEALTH EDUCATION

The economic and cultural achievements of the past century cannot be reckoned without due attention to those advances in the medical sciences which have so signally marked this period. The Century of Progress Exposition in Chicago, recognizing this fact, planned an unprecedented medical display. They employed a new visual approach by mechanizing their demonstrations. They presented demonstrations in physiology, anatomy, and the problems of public health, in such an attractive and fascinating manner that before the first summer had passed the Exposition authorities realized by the avid interest of the Fair patrons in these exhibits that they had a definite commercial value and therefore began a search for additional and more novel displays for a second season. The continued interest of the public in these medical displays during the second season entirely justified their anticipation.

At our own State Fair, this year, the State Department of Health, at considerable expense and effort, captured the attention of thousands of fair-goers by their visual demonstrations in the medical sciences. At no time in the past has a health demonstration been so generously attended. The recent medical display of the Scott County Medical Society, reported in the September issue of the JOURNAL, centers about the principle of a visual approach in health education, and the success of this display, which was entirely gratifying to its sponsors, demonstrates the possibilities of health education as a county society activity. These and many other successful efforts in lay education in the medical sciences surely demonstrate that the average man welcomes information concerning his own body and its functions as well as the principles of health control when this information is presented to him in a form which is attractive and which is well within his power of comprehension. Certainly these efforts

strikingly emphasize the superiority of this mode of approach over the earlier methods employed.

In view of these facts, it is not at all surprising to note that health and medical exhibits are to be stressed at the New York World's Fair for 1939 which is being planned at this time. The sponsors of this Fair have announced five major objectives in their program of presenting medical science and related health problems to their patrons. They propose a complete coordinated health and medical exhibit, illustrating for public education, the results of medical research. This exhibit will furnish the Fair a nucleus for a large group of commercial exhibits of products related to health, and it is planned to make this exhibit the nucleus for a permanent institution fashioned after the very famous Museum of Hygiene at Dresden, Germany. A second project is a model health village constantly demonstrating health equipment and methods in daily use by individuals, families, and communities. Here in model homes built with consistent attention to details which affect the health of the occupants and equipped with every device which modern industry affords for health protection, a selected group of people trained to observe health rules will live during the Fair. In furtherance of this idea, the board plans to emphasize at every appropriate point throughout the Fair, by protective devices and services installed for the benefit of visitors, the value of sanitation in the protection of health.

Agreeable to this thought, they further propose a strict censorship of medical products and other commodities sold or promoted on a health basis. In the language of its sponsors, the aim of the medical center and exhibits is to present "the material, social, and professional equipment now available to society for its health protection and promotion, and to provide a dramatic visualization of the brilliant possibilities for a humanity fully served with these facilities." It is further interesting to note that in recognition of the prevalence of degenerative diseases, the medical center will devote considerable attention to such diseases as cancer, nephritis, diabetes, and various forms of circulatory impairment, indicating that much may be done to prolong the lives of those who suffer from these diseases, and urging early medical attention where ill health is recognized.

Certainly the plans of the Fair committee are in every sense commendable and if these plans are carefully executed, the New York World's Fair may even surpass the Century of Progress exhibition in educating the public in medical facts so vitally affecting their everyday lives.



## NURSES IN GRAY

Public health nursing was inaugurated by the Red Cross in 1912 and developed slowly until after the War. Since that time it has reached into thousands of communities to provide bedside nursing and health education, and has become the greatest contribution of the Red Cross to the nation-wide health movement. In the past twelve months 700 Red Cross public health nurses have made more than one million home visits to patients. They have gone into schools and inspected more than 600,000 children, detected defects before serious complications set in and sent many children to doctors, dentists and oculists for corrections which have made school work easier and safeguarded future development. Instructing children in health habits has become an increasingly important phase of the school work of Red Cross public health nurses.

One of the many epidemics in which Red Cross public health nurses helped stem the spread of disease, occurred last fall in a little Colorado mining town. In this isolated community, with only two doctors, and located twenty-eight miles from the nearest hospital, scarlet fever broke out, followed by several cases of diphtheria and mumps. At the request of the mine physicians, the local Chapter Chairman asked that Red Cross nurses be sent in to help meet the situation. These nurses made a daily inspection of 355 school pupils and assisted with the immunization of 325. Recognition of their splendid services was made in a letter of appreciation from one of the mine physicians who said in part, "Please accept our appreciation and deep gratitude for the splendid support your staff of nurses has extended to this community. Without your generous help we most certainly would have been the victims of disaster. At least three of our scarlet fever patients undoubtedly would now be lost. Their lives have been saved by the intelligent and tireless efforts of the Red Cross nurses." Late last fall eight Red Cross nurses were sent to Spencer County, Kentucky, to cooperate with the State Board of Health in blotting out an epidemic of typhoid fever which had spread alarmingly before



its seriousness was appreciated. Spencer County is a rural region and these Red Cross nurses had to wade creeks, use boats, travel through the woods, over railroad trestles and across swinging bridges to reach their patients, carrying with them pails to wash clothes, chlorinated lime, nightgowns, blankets, soap, towels; everything that the stricken family might need.

In addition to the more than 700 full-time Red Cross nurses there are nearly 2,000 Red Cross nurses working in hospitals and institutions or employed on private cases who devote a part of their time to teaching home hygiene and care of the sick to classes in their locality. This program is designed to teach people to help themselves, their families and friends in giving intelligent sick room care in instances where the services of a trained nurse are not required. It is one of the most important nursing activities of the Red Cross because through such instruction it is possible to reach thousands more homes than Red Cross nurses can find time to visit. In many of the more sparsely settled areas of the country a single nurse's territory may include several hundred square miles and it is obviously impossible for her to cover all parts of it every day; but by carrying on classes in home hygiene and care of the sick at central points she can reach the majority of homes in the area and still have time to make bedside visits to those patients who most need her. This instruction is not a separate and independent health activity; rather, it serves as a means of interpreting community health programs, both in the school and in the home. It is an integral part of community health work, and is an outstanding activity in the prevention of human disease.

The Red Cross is dependent upon membership dues each year to administer its nursing services and to carry on its work of disaster, veteran and civilian relief, first aid and life saving instruction, and other activities. You share in the work of the Red Cross by enrolling as a member and your dues support its programs. Join during the Roll Call, November 11 to 26.

# SPEAKERS BUREAU ACTIVITIES

## MEDICAL EDUCATION AND COLLEGE STUDENTS

Last winter the Speakers Bureau offered the colleges in the state the opportunity of having speakers present to their students a series of talks on the romance of American medicine. The offer was received very enthusiastically by most of the colleges, and about fifty requests for talks were received. Owing to the very unseasonable winter Iowa experienced, some of these talks had to be cancelled, but over twenty-five were given. Reports on these sent to the Bureau by the heads of the different colleges were that the talks were very interesting, and seemed to be enjoyed very highly by the students.

This same work will be carried out this winter, and arrangements are already being made for an extensive series of talks at Grinnell College. These will be presented to the freshman men and women during the second semester. The tentative schedule of lectures is outlined below:

1. The Body and Its Functions  
General considerations; the ten systems (skeletal, muscular, nervous, circulatory, tegumentary, respiratory, alimentary, excretory, endocrine, and reproductive)
2. Medical Science in the Service of Health  
Ailments; medical service
3. Upkeep and Energy Supply  
Food; nutrition
4. Digestion and Elimination
5. The Use of Energy in Activities  
Muscular; mental; eye work; leisure and recreation
6. By Products of Activity and Energy Renewal  
Waste removal; fatigue; renewal of energy
7. Body Mechanics  
Posture; feet
8. Thermal Regulation  
Automatic control of temperatures; aiding temperature regulation
9. Cleanliness and the Appearance  
Bathing; complexion; hands and nails; hair; mouth and teeth; clothing
10. Infection and Resistance  
Infection; communicable diseases; colds; venereal diseases; resistance and immunity
11. Physical and Chemical Hazards  
Trauma; poisoning
12. Reproduction and Sex  
Reproduction; associated function of the reproductive organs; sex and mating

This is a very comprehensive series of talks, and while the Speakers Bureau will not attempt to pre-

sent this course to all of the colleges in the state this year, it does believe that this is a step in the right direction, and will be glad to plan similar projects for other colleges.

## COUNTY SOCIETY PROJECTS

The problem of correct and adequate first aid treatment has been increasing in importance for a long period of time, and the Speakers Bureau is pleased to note the manner in which members of the Shelby County Medical Society have attacked it. During the months of September and October, various members of the county medical society gave lectures and demonstrations on first aid, as outlined in the Red Cross course of instruction. Meetings were held each Wednesday evening, and were free to the general public. The only cost for the entire course was that for the purchase of a textbook,—sixty cents. The lectures were made as practical and instructive as possible, and were distinctly valuable to housewives and parents, as well as to all classes of workers. The program of the course was as follows:

- |                                                               |                     |
|---------------------------------------------------------------|---------------------|
| Physiology and Bandaging—                                     | Dr. C. D. Winder    |
| Shocks and Wounds, and their Treatment—                       | Dr. A. L. Nielson   |
| Artificial Respiration and Its Uses—                          | Dr. C. D. Winder    |
| Burns and Scalds and their Treatment—                         | Dr. E. A. Moore     |
| Effects of Heat and Cold, and Treatment—                      | Dr. E. A. Moore     |
| Fractures: Types, Treatment, and Demonstration—               | Dr. Carl V. Bisgard |
| Poisons, Unconsciousness, and Treatment of Common Emergencies | Dr. J. P. McGowan   |
| Transportation of the Sick and Injured—                       | Dr. C. D. Winder    |

## RADIO BROADCAST SCHEDULE

WOI—Fridays at 4:00 p. m.

WSUI—Mondays at 8:15 p. m.

- |                                                                     |                               |
|---------------------------------------------------------------------|-------------------------------|
| November 13 and 16—Safeguarding Children<br>Against Ear Infections— | Walter Kirch, M.D.            |
| November 20 and 23—Reducing Automobile<br>Mortality—                | Raymond S. Grossman, M.D.     |
| November 27 and 30—Tuberculin Seal Sale—                            | Iowa Tuberculosis Association |



# WOMAN'S AUXILIARY NEWS

*Edited by the Press and Publicity Committee*

MRS. DEAN W. HARMAN, *Chairman*, Glenwood, Iowa

## NATIONAL NEWS LETTER

Mrs. J. P. Simonds, 25 East Walton Place, Chicago, Illinois, Chairman of the Press and Publicity Committee of the Woman's Auxiliary to the American Medical Association is asking each County Auxiliary to subscribe to the National News Letter. The Letter is published four times each year and brings news of what Auxiliaries are doing to further the good cause in the various parts of the country, and also contains news and greetings from many of the national officers. The subscription may be sent directly to Mrs. Simonds and the price is one dollar per year.

## SPEECH CLINIC OF THE AIR

Wednesday, 4:15-4:30 P. M.—WSUI

The Iowa Speech Clinic of the Air is presented as a step toward an adequate statewide program of service for the many thousands of speech defectives in Iowa. It was introduced in February, 1934, and is being continued in view of the pressing need for a public awakening to the problems of speech defectives. Allowed to go unsolved, these problems are incredibly costly to the individual and to society.

Defective speech weighs down the growing child with discouragement and demoralizing frustration, and goes far toward cutting off the adult from gainful employment and happy living.

Realization of these basic truths is giving momentum to a movement aimed at the prevention and elimination of speech disorders. This series of programs is designed to give larger scope to that movement.

These broadcasts are intended for the ten per cent of school children and adults in Iowa who are speech defectives, for their parents and teachers, and for all those persons who may be responsive to the opportunity for increasing the understanding, the efficiency, and the happiness of themselves and of others.

—University of Iowa Extension Bulletin.

## BOOK LIST

(Continued from last month)

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## SOCIETY PROCEEDINGS

### Cass County

Fred Moore, M.D., of Des Moines, presented a discussion of The Social Security Act as its provisions relate to the medical profession, as a feature of the program for the Cass County Medical Society, when that organization met in Atlantic, Friday, October 2, for a dinner meeting at the Hotel Whitney. The Woman's Auxiliary to the medical society met jointly, and remained for the evening program.

R. L. Barnett, M.D., Secretary

### Cedar County

The first meeting in 1936 of the Cedar County Medical Society was held at the hotel in Tipton, Friday, October 16. Fred M. Smith, M.D., of Iowa City, spoke on Certain Aspects of the Treatment of Cardiac Failure; and Arthur W. Erskine, M.D., of Cedar Rapids, addressed the group on The Cancer Problem in Iowa. Election of officers at the business meeting resulted in the present officers being re-elected: Dr. L. E. Bees of Bennett, president; Dr. L. J. Leech of West Branch, vice president; and Dr. E. J. Van Metre of Tipton, secretary and treasurer. A vote of thanks was extended to Drs. Smith and Erskine for their very interesting discussions. It is hoped that these meetings will be held every six weeks during the coming year.

E. J. Van Metre, M.D., Secretary

### Cerro Gordo County

The regular monthly meeting of the Cerro Gordo County Medical Society was held Tuesday, October 13, at the Hotel Hanford in Mason City, with H. Winnett Orr, M. D., of Lincoln, Nebraska, as guest speaker. Following the six-thirty dinner, Dr. Orr presented a very interesting paper on the Treatment of Compound Fractures, and after the formal presentation, the subject was discussed by all members present. Another feature of the program was a paper given by Draper L. Long, M. D., of Mason City, on X-Ray Pelvimetry and Its Clinical Significance. The next meeting of the society will be Tuesday, November 10, with H. Dabney Kerr, M.D., of Iowa City, as guest speaker.

H. W. Morgan, M.D., Secretary

### Dallas-Guthrie Society

Following a noon luncheon at the Hotel Panora, in Panora, Thursday, October 15, members of the Dallas-Guthrie Medical Society and the Woman's Auxiliary, listened to John H. Peck, M.D., of Des Moines, interpret the tuberculin reactions found in his tests of various patients in the Panora schools. Two Union County physicians furnished the scientific program for the meeting under a county society exchange arrangement. A. S. Watts, M.D., of Creston, spoke on

Infant Feeding, and C. E. Sampson, M.D., also of Creston, discussed Eye, Ear, Nose and Throat Conditions in General Practice.

### Decatur County

The Decatur County Medical Society met Sunday, September 27, at the Decatur County Hospital in Leon, where Hamilton Montgomery, M.D., of Rochester, Minnesota, spoke on Skin Carcinoma, and Frederick A. Figi, M.D., also of Rochester, Minnesota, discussed Treatment of Carcinoma of the Head and Oral Cavity. The lectures were well illustrated with lantern slides and covered the field adequately. Members were pleased with the information which they received.

E. E. Gamet, M.D., Secretary

### Des Moines County

Tuesday, October 13, the Des Moines County Medical Society held its regular meeting at the Union Hotel in Burlington, at which time Mr. John N. Calhoun of Keosauqua, Republican candidate for the short term office of senator, spoke on medical problems and legislation.

G. D. Jenkins, M.D., Secretary

### Dickinson-Emmet Societies

The joint meeting of the Dickinson and Emmet County Medical Societies held at the Hotel Antlers in Spirit Lake, Thursday, October 15, was addressed by J. H. Bruce, M.D., of Fort Dodge, on Cesarean Section.

Ruth F. Wolcott, M.D., Secretary  
Dickinson County Medical Society

### Dubuque County

The regular monthly meeting of the Dubuque County Medical Society was held at the Finley Hospital in Dubuque, Tuesday, October 13, with the following program: Group Hospitalization, Mr. Frederick Lattner, superintendent of Finley Hospital; and Social Security Legislation, F. P. McNamara, M.D.

A. C. Pfohl, M.D., Secretary

### Fayette County

At a meeting of the Fayette County Medical Society held at the Mealey Hotel in Oelwein, Tuesday, October 6, H. P. Moen, M.D., of West Union, presented an interesting case of Carcinoma of the Bronchus, and C. C. Hall, M.D., of Maynard, discussed legislative matters of interest to the medical profession. The society voted approval of the Basic Science Law and a desire for its continuance. In an effort to determine the attitude of this society toward the national Social Security Act, the following motion was voted upon and passed unanimously: Be it



resolved that the Fayette County Medical Society opposes sickness insurance plans and state medicine as planned by the national Social Security Act.

West Union physicians were hosts to the other members, at a meeting held in West Union, Thursday, October 22, at which time the following program was presented: Bladder Tumors, F. Harold Entz, M.D., of Waterloo; Syphilitic Keratitis, Henry A. Bender, M.D., of Waterloo; and motion pictures on Infant Resuscitation.

R. J. Galvin, M.D., Secretary

#### Floyd County

Members of the Floyd County Medical Society met at the home of Dr. Ray A. Fox in Charles City, Tuesday, October 20, at which time R. D. Bernard, M.D., of Clarion, gave an informal discussion of the present status of the Basic Science Law and of the Social Security Act.

H. A. Tolliver, M.D., Secretary

#### Fremont County

Two physicians from Council Bluffs presented the scientific program for the Fremont County Medical Society which met Monday, October 19, at the Sidney Hotel in Sidney. After the six-thirty dinner, Jack V. Treynor, M.D., gave a paper on Immunization with Special Reference to Scarlet Fever and Measles, and Karl R. Werndorff, M.D., spoke on Different Forms of Colles' Fracture and the Treatment. There was a fair attendance and a good program which was well received.

A. E. Wanamaker, M.D., Secretary

#### Hamilton County

H. W. Scott, M.D., of Fort Dodge, was guest speaker for the Hamilton County Medical Society at a meeting held in Webster City, Monday, October 26, at the Willson Hotel. Dr. Scott spoke on Transurethral Prostatic Resection. At the business meeting Dr. O. A. Hall, retired, of Webster City, was made a life member of the Hamilton County Medical Society.

David W. James, M.D., Secretary

#### Hancock-Winnebagos Society

The Hancock-Winnebagos Medical Society met at the Irish Hospital in Forest City, Monday, October 26, and R. D. Bernard, M.D., of Clarion, and L. R. Woodward, M.D., of Mason City, reviewed and explained the Social Security Act, state medicine, and the present status of the Basic Science Law. The society is very grateful for the help of these two well informed speakers. At the request of Mrs. C. L. Putnam of Holstein, fourth vice president of the state auxiliary, our society voted its approval for the organization of a local auxiliary.

W. F. Missman, M.D., Secretary

#### Hardin County

Following a six-thirty dinner at the Stevens Hotel in Iowa Falls, Friday, October 30, S. J. Ritchey, M.D., and J. A. William Johnson, M.D., both of Newton, presented the scientific program for members of the Hardin County Medical Society. Dr. Ritchey spoke on Endometriosis.

W. E. Marsh, M.D., Secretary

#### Jasper County

Julius S. Weingart, M.D., pathologist of Des Moines, addressed members of the Jasper County Medical Society at a meeting held in Newton, Tuesday, October 6. Dr. Weingart discussed The Autopsy, and illustrated his lecture with a motion picture film, which he has made.

#### Johnson County

Members of the Johnson County Medical Society were guests of the staff of Oakdale Sanatorium, Wednesday, November 4. The speaker of the evening was Evarts A. Graham, M.D., professor of surgery, Washington University School of Medicine, St. Louis. Dr. Graham presented a lecture on Bronchogenic Carcinoma.

W. M. Fowler, M.D., Secretary

#### Linn County

The next meeting of the Linn County Medical Society will be held Thursday, November 19, with Frank A. Evans, M.D., of Pittsburgh, Pennsylvania, as guest speaker. Dr. Evans' subject is The Physiologic Background and Treatment of Obesity and Undernutrition, and will be discussed by Drs. Fred M. Smith of Iowa City, Daniel J. Glomset of Des Moines, and J. Stuart McQuiston of Cedar Rapids.

#### Louisa County Annual Meeting

Election of officers at the annual meeting of the Louisa County Medical Society held at Letts, Thursday, October 8, resulted as follows: Dr. R. W. Tandy of Morning Sun, president; Dr. F. A. Hubbard of Columbus Junction, vice president; and Dr. E. R. King of Letts, secretary and treasurer.

#### Marshall County

The Marshall County Medical Society met at the Hotel Tallcorn in Marshalltown, Tuesday, October 6, for a program dealing with important legislative matters of interest to the medical profession. Professor W. L. Strunk of Luther College, Decorah, addressed the group on What Is the Basic Science Law? and E. M. MacEwen, M.D., dean of the College of Medicine, University of Iowa, spoke on The Social Security Program.

Rodney C. Wells, M.D., Secretary

#### Montgomery County

Thursday, October 1, members of the Montgomery County Medical Society convened at the Hotel Johnson in Red Oak for their regular monthly meeting. J. C. Cooper, M.D., of Villisca, spoke on Medical Legislation, and H. C. Bastron, M.D., of Red Oak, read a paper on Lymphoid Tissues of the Nasopharynx. The closing feature of the program was the showing of a motion picture film, Colles' Fracture, on the projector which has just been purchased by the county society.

Fred A. Hansen, M.D., Secretary

#### Pocahontas County

A business meeting of the Pocahontas County Medical Society was held in Pocahontas, Thursday, Octo-

ber 1, for the purpose of discussing matters of interest to the profession, such as a new fee bill, the program for the coming season's meetings, and legislative affairs.

B. A. Smillie, M.D., Secretary

#### Polk County

A special scientific meeting of the Des Moines Academy of Medicine and Polk County Medical Society was held at the Hotel Fort Des Moines, Tuesday evening, October 13. Guest speakers were Joseph A. Weinberg, M.D., associate professor of clinical pathology and assistant professor of surgery at the University of Nebraska, who spoke on the subject of Bronchiectasis; and Harold E. Eggers, M.D., who spoke on the subject of Experimental Study of Cancer. The papers were discussed by Drs. Walter Kirch, Thomas A. Burcham, Howard D. Gray and William E. Sanders.

The regular meeting of the society was held at the Hotel Fort Des Moines, Tuesday evening, October 27. The following new members were introduced to the society: Maurice T. Bates, M.D., Milton A. Dushkin, M.D., James W. Young, M.D., and Mr. Denny Brann. The scientific program was presented by Julian M. Bruner, M.D., who read a paper entitled The Male Hormones; and Erwin von Graff, M.D., who presented a paper on the subject of Abdominal Total versus Subtotal Hysterectomy. The papers were discussed by Drs. Joseph B. Priestley, Clifford W. Losh, Abraham G. Fleischman, John B. Synhorst and J. Charles Ryan.

The next regular meeting of the society will be held November 24, at which time papers will be presented by Francis A. Ely, M.D., and Emory L. Mauritz, M.D.

E. M. Kingery, Executive Secretary

#### Pottawattamie County

The Pottawattamie County Medical Society entertained three Sioux City physicians as guest speakers for the meeting held Monday, October 12, at the Edmundson Hospital in Council Bluffs. After a six-fifteen dinner the following program was presented: Trends in the Treatment of Diabetes, Charles T. Maxwell, M.D.; Vaginal Ureterolithotomy, W. K. Hicks, M.D.; and The Review of 100 Cases of Anterior Poliomyelitis with Special Reference to Therapy, P. D. Knott, M.D.

Monday, November 16, the society will have as its principal speaker, Karl A. Menninger, M.D., of the Menninger Clinic, Topeka, Kansas, who will speak on The Problem of Psychologic Factors in Medicine. The meeting will be held at the Hotel Chieftain.

Fred H. Beaumont, M.D., Secretary

#### Poweshiek County

A meeting devoted entirely to a discussion of medical economics was held by the Poweshiek County Medical Society, Tuesday, October 13, at Montezuma. J. L. Ravitts, M.D., of Montezuma, presented a paper on Social Security, which was discussed by O. F. Parish, M.D., and E. E. Harris, M.D., both of Grinnell.

F. E. Simeral, M.D., Secretary

#### Sac County

A business meeting of the Sac County Medical Society was held in Lake View, Thursday, September 24, for the purpose of discussing the proposed county health service program of immunization. The procedure was approved and various details were agreed upon.

The October meeting of the society was held in Early, on Tuesday, October 20, at which time Attorney Don G. Mullan of Odebolt delivered his address, which had been postponed from an earlier date. He spoke on the relationship between the medical and legal professions, the doctor in court as an expert witness, and briefly on collections. The address was most interesting and instructive, and was followed by an extensive round table discussion participated in by all present. A vote of thanks was extended to Mr. Mullan for his kindness in appearing on our program. At the business session, plans were completed for carrying out the previously approved immunization program in the county.

W. E. Hart, M.D., Secretary

#### Washington County

Members of the Washington County Medical Society held their October meeting on Monday, October 26, at the Nurses Home in Washington. Dinner was served at six-thirty, after which W. D. Paul, M.D., of the College of Medicine, University of Iowa, presented a lecture on Coronary Heart Disease. Seventeen physicians were in attendance.

W. S. Kyle, M.D., Secretary

#### Winneshiek County

M. C. Melrose, M.D., of Independence, was the speaker of the evening when the Winneshiek County Medical Society met in Decorah, Tuesday, October 13. Dr. Melrose spoke on The Treatment of Varicose Veins and Ulcer, after which a round table discussion on the subject was enjoyed by all members present.

L. J. Hospodarsky, M.D., Secretary

#### Woodbury County

E. H. Rynearson, M.D., of the Section on Metabolism at the Mayo Clinic, Rochester, Minnesota, was guest speaker for the Woodbury County Medical Society, at its meeting held Monday, October 19, at the West Hotel in Sioux City. Dr. Rynearson spoke on Recent Advances in Endocrinology, and his paper was discussed by Drs. Charles T. Maxwell, John H. Henkin, and William H. Gibbon, of Sioux City.

The next meeting of the society will be held in Sioux City, Thursday, November 19, at which time Max Cutler, M.D., of Chicago, will be the principal speaker.

W. H. Gibbon, M.D., Secretary

#### Iowa and Illinois Central District Medical Association

Elliott P. Joslin, M.D., clinical professor of medicine at Harvard University Medical School, Boston, Massachusetts, delivered an address entitled A Prac-



tical Talk on the Present Status and Treatment of Diabetes, Wednesday evening, October 28, at the meeting of the Iowa and Illinois Central District Medical Association held at the Le Claire Hotel in Moline, Illinois. Dr. Joslin for many years has been a recognized authority on the treatment of diabetes. He is the author of several text books on diabetes, some of which are in their fourth and fifth editions.

James Dunn, M.D., Secretary

#### Southeastern Iowa Medical Society

The Southeastern Iowa Medical Society composed of Des Moines, Henry, Jefferson, Lee, Louisa, Muscatine, Scott, Van Buren, and Washington counties, met at the Brazelton Hotel in Mt. Pleasant, Thursday, October 15, and the following program was presented: Eye, Ear, Nose and Throat Hints, A. M. Paisley, M.D., Keokuk; Neurosyphilis, L. P. Ristine, M.D., Mt. Pleasant; Degenerative Heart Disease, George B. Crow, M.D., Burlington; Immunization Against the Infectious Diseases, M. C. Ravenal, M.D., emeritus professor of bacteriology, State University of Missouri, School of Medicine, Columbia. Dr. L. A. Coffin of Farmington, president of the organization, presided at the six-thirty banquet, and presented his address. M. P. Neal, M.D., professor of pathology, State University of Missouri, College of Medicine, Columbia, delivered the address of the evening on Cancer Viewed as a Preventable Disease.

#### Southwestern Iowa Postgraduate Medical Society

Two physicians from the Mayo Clinic, Rochester, Minnesota, furnished the scientific program for the Southwestern Iowa Postgraduate Medical Society when that organization met in Atlantic, Friday, October 9. A. C. Davis, M.D., presented a paper on The Clinical Significance of Basal Metabolic Rates; and H. L. Smith, M.D., spoke on Attacks of Unconsciousness Associated with Cardiac Diseases, illustrating his paper with a motion picture showing several induced attacks.

R. L. Barnett, M.D., Secretary

#### PERSONAL MENTION

Dr. John H. Peck, after practicing in Des Moines for twenty-three years, has been appointed superintendent of the Iowa State Sanatorium at Oakdale to succeed the late Dr. J. A. Edwards. Dr. Peck came to Des Moines in 1910, where he was assistant professor of theory and practice of medicine at Drake University School of Medicine for three years, entering into general practice in 1913. Dr. Peck's office and practice will be taken over by Dr. John C. Parsons of Creston. Dr. Parsons is a graduate of the State University of Iowa, College of Medicine, and has practiced in Creston for fourteen years.

Dr. Frank R. Peterson, of Iowa City, has been appointed head of the department of surgery of the College of Medicine, State University of Iowa, succeeding the late Dr. Howard L. Beye. Dr. Peter-

son is a graduate of the University, and has been associated with the department of surgery for fourteen years.

Drs. Roy E. Crowder and W. S. Petty of Sioux City addressed the members of the public welfare department of the Sioux City Woman's Club, Thursday, October 23. Dr. Crowder spoke on "Maternal Health," and Dr. Petty on "Health Problems in Sioux City."

Dr. John H. Faust, who has practiced for the past year and one-half in Newton, has located in Iowa Falls for the practice of general medicine and surgery. Dr. Faust was graduated from Northwestern University Medical School in 1929.

Dr. H. W. Morgan, of Mason City, was the second speaker in a series of talks sponsored by the Business and Professional Women's Club of Mason City. Dr. Morgan spoke Monday, November 2, on "Facts, Fads and Foibles."

Dr. C. A. Soe, formerly of Manilla, has accepted a position on the staff of the Homestake Hospital at Lead, South Dakota. He is succeeded in Manilla by Dr. C. M. Gillespie, formerly of Ledyard.

Dr. Ernest E. Shaw, of Indianola, spoke before the Grinnell Kiwanis Club, Tuesday, October 6, on "The Value of Periodic Health Examinations."

Dr. William O. Purdy, of Des Moines, has been named assistant medical director of the Equitable Life Insurance Company of Iowa. Dr. Purdy was graduated from the University of Virginia Medical School in 1930, and has been practicing in Des Moines for the past four years.

Dr. A. R. Wanamaker, of Hamburg, addressed the Shenandoah Kiwanis Club, Friday, October 16, on "The Economic Aspect of Health."

Dr. Otis Wolfe, of Marshalltown, recently returned from a two months' trip to Norway, Sweden, Denmark, Finland, Russia, Germany and England. While there he visited eye clinics in the various countries, spending ten days at Moorfields Eye Hospital in London.

Dr. Andrew H. Woods, head of the Psychopathic Hospital at the State University of Iowa, was presented by the Muscatine Business and Professional Women's Club, and the American Association of University Women, in a public address, Monday, November 2. Dr. Woods spoke on "Easy Environment—Weak Minds."

Dr. Harold T. Werner has recently resigned as head of the Santa Fe Hospital in Fort Madison, and has moved to Paducah, Kentucky, where he will be engaged in the private practice of medicine.

Dr. William Malamud, of the College of Medicine, State University of Iowa, was the guest speaker of the Cherokee Teachers' Club, Friday, October 23. Dr. Malamud's topic was "Psychology of the Adolescent Pupil."

Drs. H. P. Smith, E. D. Warner, and K. M. Brinkhaus, of the Pathology Department, State University of Iowa, College of Medicine, have received from the Committee on Scientific Research of the American Medical Association, a grant to aid in research work on blood clotting.

Dr. T. Frank Hersch, of Cedar Rapids, addressed members of the Cedar Falls Lions Club, Monday, October 26, on the subject "The Value of Periodic Physical Examinations."

Dr. Walter A. Anneberg, of Carroll, was guest speaker at a meeting of the Storm Lake Kiwanis Club, Wednesday, October 7. Dr. Anneberg spoke on the subject "The Under Privileged Child."

#### MARRIAGES

The marriage of Miss Helen B. Guenther, daughter of Mr. and Mrs. Charles G. Guenther of Sandusky, Ohio, and Dr. Donald L. Borgen of Gowrie, took place Sunday, September 20, at Saint Paul's Lutheran Church in Sandusky. They will reside in Gowrie, where Dr. Borgen has been engaged in the practice of medicine for the past four years.

Thursday, October 15, Miss Mary Ellen McLaughlin, daughter of Dr. and Mrs. A. J. McLaughlin of Sioux City and Dr. Roland F. Martin, of Sioux City, were united in marriage at the rectory of the Blessed Sacrament Church. Following a short trip to Chicago, Dr. and Mrs. Martin will be at home in Sioux City where Dr. Martin has practiced for the past two years.

Miss Johanne Wilkens of Chicago and Dr. Craig D. Ellyson of Waterloo were married October 26, at Timothy Stone chapel of the Fourth Presbyterian Church in Chicago. After a short trip through the Ozark Mountains, the young couple will be at home in Waterloo, where Dr. Ellyson has been associated with his father in the practice of medicine.

#### DEATH NOTICES

Edwards, James Archibald, of Oakdale, aged sixty-one, died October 5, of a cardiac ailment complicated by injuries received in an automobile accident. He was graduated in 1904 from the University of Nebraska, College of Medicine, Omaha, and at the time of his death was a member of the Johnson County Medical Society.

Hadsel, Henry S., of Oxford, Ohio, formerly of Elgin, Iowa, aged eighty-four, died October 6, following a long illness. He was graduated in 1882 from

the College of Physicians and Surgeons, Keokuk, and at the time of his death was a life member of the Fayette County and Iowa State Medical Societies.

Pitcher, Jonathan Jay, of Mount Pleasant, aged fifty-four, died October 22, as the result of cerebral hemorrhage. He was graduated in 1906 from the Hahnemann Medical College and Hospital, Chicago, and at the time of his death was a member of the Henry County Medical Society.

Titze<sup>l</sup>, Frank Conquelson, of Iowa City, aged seventy-three, died October 18, following a lingering illness. He was graduated in 1889 from the Chicago Homeopathic Medical College, and at the time of his death was a member of the Johnson County Medical Society.

#### APPROPRIATION FOR ARMY MEDICAL LIBRARY

The Medical Library Association at its annual meeting June 22, 1936, passed a resolution recommending that Congress appropriate adequate funds for the Army Medical Library to continue the publishing of the fourth series of the *Index-catalogue* of the Library of the Surgeon-General's Office. For the past three years no volumes of this catalogue were printed because sufficient funds were not accessible for the task. For this reason the Medical Library Association has passed resolutions pertaining to the subject, and they are here reproduced in part.

WHEREAS, The value and usefulness of the *Index-catalogue* is dependent upon the completeness of the files of medical publications contained in the Library of the Surgeon-General's Office—a public, national, medical library, the greatest in the world, serving in its present form of administration with satisfaction the medical profession and the medical libraries of our country, . . .

THEREFORE, BE IT RESOLVED, That the Medical Library Association urges the Congress to appropriate annually to the Library of the Surgeon-General's Office an adequate sum for current medical books and periodicals and for the purchase of back publications lost during those recent years when the amount granted was grossly inadequate, thus depreciating the completeness and usefulness of the Library's collection; and an additional sufficient sum annually, for as many years as may be required, in order to make for the greatest possible completeness of the collection and its *Catalogue*; and

BE IT FURTHER RESOLVED, That a sum be appropriated annually to defray the cost of printing regularly each year not less than one volume of the *Index-catalogue*, and

BE IT FURTHER RESOLVED, That a copy of these resolutions be sent to . . . the national, state, and other medical periodicals, urging them . . . to adopt similar resolutions to be sent to their local members of Congress requesting their support of these measures.



# HISTORY OF MEDICINE IN IOWA

*Edited by the Historical Committee*

DR. FRANK M. FULLER, Keokuk

DR. JOHN T. McCLINTOCK, Iowa City

DR. PAUL W. VAN METRE, Rockwell City

DR. TOM B. THROCKMORTON, Des Moines

DR. WALTER L. BIERRING, Des Moines

DR. WILLIAM JEPSON, Sioux City

## The Transition from Franklin Medical School to the Keokuk College of Medicine of the State University of Iowa

FERDINAND J. SMITH, M.D., Milford

(Continued from last month)

THE COLLEGE OF PHYSICIANS AND SURGEONS  
OF THE UPPER MISSISSIPPI RIVER  
DAVENPORT, IOWA, 1849-1850

A letter from John Dillon contains the statement that "The only reason given to explain why the College was removed to Davenport, was found in the announcement of that year, and stated that 'by the enterprise of Mr. John Forrest, of Davenport, a commodious building has been erected and leased to the faculty for a term of years.' The building is described as containing an amphitheatre, lecture rooms, and dissecting rooms lighted from above." (The writer has seen this building which was located on the southwest corner of Brady and Third streets.)

It has been stated that the Rock Island school was an outgrowth of the La Porte, Indiana, school.<sup>13</sup> This is erroneous. The La Porte school was founded in 1842, the same year in which the Franklin school was established. Included in the original faculty of the former school were Drs. Daniel Meeker, Franklin Hunt, Jacob Andrew, Gustavus Rose, John B. Miles. In 1844, there were added to the faculty the following new members: Drs. Geo. W. Richards, Nichols Hard, members of the Franklin College, and Moses Knapp, of Rush Medical College, Chicago; also Drs. Daniel E. Brown and John Long, and later Drs. E. Dunning, T. Higley, J. A. Allen and George W. Lee. Drs. Richards, Knapp and Hard withdrew in 1848 to found the Rock Island College, while the La Porte College continued to function until 1850, when it closed its doors.

Dr. Dillon writes under date of October 5, 1849:

"By the way, we have been favored with a visit from Professor Sanford. The doctor came up on

business connected with the college and remained some two or three days. He possesses even more than his usual enthusiasm respecting the success of our infant institution, and says that he has succeeded in getting recognition in all eastern colleges, so that any of our alumni can obtain ad eundem degrees from them by complying with their requisitions. The college edifice is in the process of completion; indeed, it is nearly finished. The brick work is done, the floors are laid, the windows being put in and the plastering commencing, and when finished we will have a comfortable and respectable place. Much superior to the 'Pork House' of Goudy memory."<sup>17</sup>

The college was removed to Davenport, and a course of lectures was given there during the winter of 1849-1850.<sup>14</sup> (A second course was given immediately following the first course.) This college continued to hold the title "Rock Island College of Medicine" until February, 1850, and had about the same faculty, with some few changes, as the previous year. When the winter term opened the following were listed as members of the faculty<sup>15</sup>: Anatomy, Dr. Chandler B. Chapman, Madison, Wisconsin; Chemistry and Pharmacy, Dr. Orpheus Everts; Materia Medica and Therapeutics, Dr. Moses L. Knapp, Chicago; Medical Jurisprudence, Physiology, Pathology, Dr. A. G. Armor, Rockford, Illinois; Obstetrics, Diseases of Women, Children and Surgery, Dr. John F. Sanford, Farmington, Iowa; Practice of Medicine, Dr. George W. Richards, Dubuque, Iowa; Demonstrator of Anatomy, Dr. J. B. Fisher.

A letter penned by Dr. Dillon on November 14, 1849, contains the following statement:

"The college is in full and successful operation. Owing to a ridiculous coup d'état recently made by the Rush Medical College for the ignoble purpose of crushing this new colaborer in the cause of medical science, there are only at this time about twenty-five students in attendance. Before the termination of the session there will be many more probably who will come in and we will be able to show the Rush College that the blow by which they sought to destroy us will recoil with redoubled force upon themselves. I will fearlessly venture this prognosis—that this school, despite the opposition which has been marshalled against it, notwithstanding the ably conceived and well directed movements in every quarter to crush it in its first infancy, will continue, as it has done, to flourish amidst their vain endeavors to annihilate it and that though the bantling of opposition reared in adversity, it will yet attain the size and strength to repay with compound interest the murderous efforts of those who vainly endeavored to destroy it when they thought it too weak to protect itself, and friendless, could not obtain the assistance of others. It would indeed pass for a singular anomaly in the history of colleges if an institution enjoying so many advantages as this, and comprising such an amount of talent and experience, could be crushed by the puerile effusions of such men as compose the front and rear of the opposition."

Dr. Dillon also mentioned that the school opened with a "well prepared lecture by Dr. John Sanford."<sup>17</sup>

The history of the school in 1849 and 1850, during which time it was located in Davenport, was apparently uneventful. However, much undercover work was being done during this time to bring about the recognition of the school by the State University authorities as a department of the University. From the fact that Mr. Whicher had been concerned with the legal representation of a group which was asking for this recognition, and that eventually there was but one physician, whose name was mentioned at the first, who still remained with the new school when its organization was completed, while all the other faculty members were or had been eliminated, it looks as though perhaps all of this work was for the purpose of keeping any other parties from trying to get in ahead of the Rock Island school. Dr. Hudson was the only one of the teachers whose name appeared in the first list, who was retained on the new faculty which removed to Keokuk.

Dr. Fairchild, in his History of the Keokuk College of Medicine quotes the following from a letter of Judge Dillon: "The professors as a body, were

able men, some of them of great learning and even genius. Abler men than Professors Richards, who taught practice, Sanford, who taught surgery, and Armor, who taught physiology, it would be difficult to find in the chairs of any contemporary medical institution."<sup>21</sup>

In a letter of Dr. John Dillon, dated May 20, 1850, there is to be found the following statement: "You inquire about the prospects of the school: My opinion is that they are very much mixed, bordering, I think, on the dubious. As a small cloud, 'no bigger than a man's hand,' prognosticates the coming storm, there exist a few, and to my mind, by no means insignificant, premonitions of an explosion in the faculty. It is not necessary to mention the data upon which I predicate this opinion, as I fondly hope the storm may be averted, or if this assail, may the institution be but more firm from the shock."<sup>17</sup> The explosion, evidently, never occurred. At any rate, no mention is made of it at any time in the course of the following year.

It will be noted that after the removal of the College from Davenport, the faculty which was partially completed at the time of the first contact with the Trustees of the State University, was entirely reorganized. Practically all who were in it then were replaced by other men.

At the close of the winter session in Davenport, of the Rock Island College, in February, 1850, articles of incorporation, a result of the activities of Dr. John F. Sanford, a member of the Iowa State Senate, were granted, and the newly organized college became known as the College of Physicians and Surgeons of the Upper Mississippi.<sup>16</sup> In the Archives of the State University, we find under date of February 22, 1850, the following<sup>18</sup>:

"A memorial from a committee of the College of Physicians and Surgeons of the Upper Mississippi was presented by Mr. Whicher, solicitor of said memorialists, and after hearing a full statement of the wishes of said memorialists, the following resolution was adopted:

"Whereas, a memorial has been presented to this Board by sundry physicians under the name and style of the 'College of Physicians and Surgeons of the Upper Mississippi,' praying to be recognized as a medical department of the State University of Iowa;

"And, whereas, in view of the measures adopted at a meeting of the Board held in December, 1848, the prayer cannot be fully complied with;

"But whereas, this Board is now here given to understand and is informed that the professorships heretofore created have become vacant by resignation or otherwise of the late incumbents, would be acceptable to the memorialists;



"Resolved, that this Board confirm and approve the following appointments in said medical department to wit: A. S. Hudson, M.D., who was heretofore appointed to the chair of Anatomy and Physiology is hereby approved in the chair of Professor of Obstetrics and Diseases of Women and Children, in the place of C. P. Hastings, resigned; John F. Sanford, M.D., is hereby approved in the chair of the Principles and Practice of Surgery to which he has been appointed in the place of Dr. J. M. Vaughan; Samuel G. Armor, M.D., is hereby approved in the chair of Medical Jurisprudence to which he has been appointed in the place of Stephen Whicher, B.L., resigned."

In February, according to previously made arrangements, there were graduated from the discontinued Rock Island Medical College, the following named gentlemen, who had produced satisfactory evidence of qualifications, the degree being conferred upon them by the College of Physicians and Surgeons of the Upper Mississippi, Medical Department of Iowa State University: Samuel Crandall, Seth H. Craig, John F. Dillon, John S. Graham, Lyman Hall, Rufus Howard, Alfred Waterman, George Warne. Honorary degrees were conferred upon W. H. Clark, and William Weatherford, of Iowa, and Luke Hale, of Illinois.<sup>19</sup>

On March 18, 1850, an official notification was received from the Secretary of the Board of Trustees of the Iowa State University announcing the recognition and establishment of this college as the Medical Department of the Iowa State University.<sup>15</sup>

The second class from the new University Medical College was graduated on June 13, 1850. The following is a list of the class to whom the degree of M. D. was conferred: Rickey D. Barton, H. E. Cross, Monroe N. Dodson (Dr. Monroe N. Dodson was the father of Dr. Dodson, dean of the Medical Department of Chicago University, College of Medicine), A. L. Huyck, A. A. Noyes, H. L. Potter, and R. C. Warriner.<sup>20</sup>

Courses of instruction and the requirement for graduation as well as fees were about the same in all the other western schools and were no different from those in the eastern schools. It was out of the question to increase standards of instruction and fees above the general level, for that would drive the would-be students to institutions where they could obtain what they desired in a shorter time and at less expense. The students were required to be twenty-one years of age before they could obtain a diploma; they must be of good moral character; have three years of study under the direction of a preceptor, including in

this time two courses of lectures, the last of which to be at the school from which they decided to graduate. A thesis was also required, which could be written in English, German or French (There was a large French and German speaking population, the former in the south, the latter in the north) and finally the payment of fees in advance.<sup>22</sup>

The faculty in 1850, when it became located in Keokuk, was as follows:<sup>23</sup>

John F. Sanford, M.D., Professor of Surgery and Dean.

L. D. McGugin, M.D., Professor of Obstetrics and Diseases of Women and Children.\*

Samuel G. Armor, M.D., Professor of Physiology and Pathology.

Nichols Hard, M.D., Professor of Anatomy.

George W. Richards, M.D., Professor of Theory and Practice of Medicine.

A. S. Hudson, M.D., Professor of Materia Medica and Therapeutics.

S. Mathews, M.D., Professor of Chemistry.

J. C. Hughes, M.D., Demonstrator of Anatomy.

This was one of the ablest faculties teaching in the United States at that time.

Plans were made, the following summer, to change the location of the College to Keokuk. The dean of the faculty, Dr. Sanford, was authorized and empowered to change the college from Davenport to Keokuk, and to transact the necessary business for the opening of the college at its annual session at Keokuk on the first Monday in November, 1850.

The next session of the College was at Keokuk, Iowa, beginning in the late fall. There has been considerable speculation about this last removal, and wonder that the school should have left very good quarters and also a very good location. The writer can see several possible reasons for the removal. In the first place, the population was much greater in and around Keokuk and to the south, southwest and southeast than it was to the north. The greater ease of obtaining cadavers for dissection from St. Louis where there was a large Negro population might also be a reason for the move. It is also to be remembered that Keokuk is at the foot of a rapids extending from the town of Nauvoo, Illinois, until one arrives at the upstream limits of the town of Keokuk, and that

\* In some of the histories a Doctor D. L. McGingan is given as the Dean of the Medical Faculty in 1850, when the school moved to Keokuk. Dr. Geo. F. Jenkins<sup>25</sup> states that Dr. D. L. McGugin was made dean in 1850 when the college removed to Keokuk; but this is not a fact. There are many statements made by various men, stating that Dr. Sanford was made the Dean of the school on that occasion and that he was given the duty to attend to the business of the removal of the College to Davenport<sup>25</sup>. The name McGingan does not appear anywhere in the record, nor does Dr. Jenkins mention him. The fact that McGingan and McGugin have the same initials for their given names would indicate that the name had been misprinted and the error was not corrected.

navigation was hazardous and sometimes impossible to the north of Keokuk, depending upon the stage of the water in the Mississippi. It can be understood that with its location in Keokuk it was more certain to draw on the southern territory for students, and as for the northern territory, it was, by comparison, thinly populated and it would be more likely for them to come to Keokuk than for the Southerner to come north of Keokuk.

(Note: For the history of the College after locating at Keokuk, and during the time it was the Medical Department of the Iowa State University, and after, see Dr. D. S. Fairchild's history recorded in the Medical History of Iowa, which can be consulted at, or obtained from, the Medical Department of the Iowa State Library.)

On February 7, 1854, the following resolution was adopted. Resolved that the following named persons be recognized by this Board as the Faculty of the Medical Department of the State University at Keokuk, Iowa, to wit:

D. L. McGugin, M.D., Professor of Physiology, Pathology, and Microscopy.

Freeman Knowles, M.D., Professor of Theory and Practice of Medicine.

J. C. Hughes, M.D., Professor of Surgery and Dean of Faculty.

J. E. Sanborn, M.D., Professor of Chemistry and Materia Medica.

E. R. Ford, M.D., Professor of Obstetrics and Diseases of Women and Children.

Edward A. Arnold, M.D., Professor of Anatomy.

P. Van Patten, M.D., Demonstrator of Anatomy.

The last approval of faculty made by the Trustees as recorded in the minutes is the following item dated June 30, 1856:

"The following appointments of the Faculty of the Medical Department (at Keokuk) of the State University—reported by J. C. Hughes, Dean of the Faculty for the approval of this Board, were on motion duly approved, to wit:

"Professor John R. Allen to the Chair of Obstetrics and Diseases of Women and Children in place of E. R. Ford, resigned.

"Wills R. Marsh, Professor of Chemistry and Materia Medica in place of Prof. J. E. Sanborn, resigned.

"John J. Page, Demonstrator of Anatomy in place of Kirtly Ryland, M.D., resigned.<sup>24</sup>

Eventually a medical department of the University was organized and located at Iowa City, in compliance with the constitution of the State of Iowa, requiring all departments of the Uni-

versity to be located in Iowa City. From then on the Keokuk school was again a private institution, and for several years, due to a disagreement between the members of the faculty, it split into two colleges which breach was, however, healed and the two schools became re-united.

For some years, beginning in 1887, and culminating about 1912, there were movements on foot to increase the demands upon prospective medical students for better preparation to enter upon the study of medicine and requirements for longer residence in college, resulting in the doing away of the preceptorship system and replacement by hospital internships, where the graduates were able to obtain practical experience under the direction of able practitioners of medicine, surgery, or any of the other special branches. Not until 1900 did there come a movement to furnish more thorough laboratory instruction, in better laboratories, under the direction of trained, salaried and full-time instructors.

As a result of this, it became next to impossible for privately owned medical colleges to continue to compete; it required an endowment fund, and a considerable one, to meet the expenses of such an institution. The student fees did not bring in more than one-third of the expenses of a standard medical course and the medical college found it necessary to furnish the other two-thirds. This might be possible, with a University connection, and the faculty of the Keokuk College decided it would be better to give up the unequal struggle and merge their institution with one which had University backing.

This resulted in the merger of the College with the Drake University College of Medicine. It was hoped that this merger would strengthen Drake College of Medicine sufficiently so that it would be able to continue, and for a time the combined schools seemed to have every prospect of success. The College increased its entrance requirements rather abruptly to a two-year course in premedic studies, when most of the other schools were not yet going beyond the one-year requirement. Whether this hastened the demise of the College or not, it is true that the work being done, both by the faculty and the students, was of the highest quality, and it is to be regretted that some way was not found to provide the necessary funds, so that the institution could continue its good work. Many and great sacrifices were made by their faculties, and their graduates reflected great credit upon these teachers during the existence of these two colleges.

At a time when the Drake College of Medicine gave every evidence of its vitality, the strength



of its faculty, the excellence of its laboratories, the large resources in clinical work along all lines, it became impossible for Drake University to continue longer to carry the financial burden, and so it arranged to have the college merged with the medical College at Iowa City, closed its doors and wrote finis on its work along medical lines. Since then Iowa has had but one college of medicine, and the old feuds existing between the supporters of the different colleges (which once dotted Iowa—there were eight of them) have been forgotten and the profession is happily united in supporting out great Medical College and Hospital which the state has developed at Iowa City.

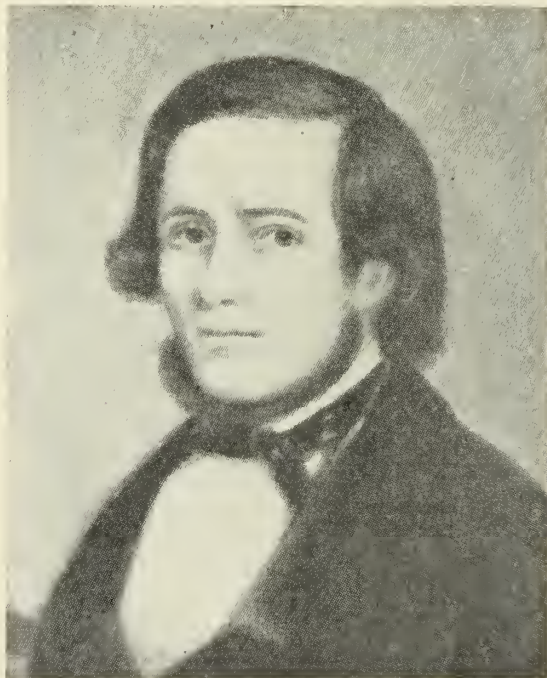
\* \* \*

The following biographies were copied verbatim from the History of Medicine in Illinois, Vol I, by Dr. Zeuch. The reading of these notes will enable the modern practitioner to form some opinion as to the preparation of the teachers of medicine of that period, their methods of teaching and their ability to teach efficiently and train medical students to become successful practitioners of medicine and surgery. The students coming under the influence of such men as Drs. Richards, Sanford, Hard and many others of the teachers who were connected with the college before mentioned, necessarily must have profited greatly by their contact with them. The work which they received from their preceptors would compare favorably with the work which the present day students obtain in hospital service. True, they lacked the preliminary training in the fundamentals; laboratory facilities, barring anatomy, were practically non-existent in our medical colleges in the middle of the last century. How could it be otherwise? The colleges were giving on an average not over twelve weeks annual courses of lectures for two years only; there could be no time for such courses, even if they were prepared to take advantage of them, which they were not. In the meantime, there were sparsely settled communities springing up all about the country, where medical care was needed and could not have been supplied in any other way. To fill this need there was no other system so well adapted to serve the purpose and thus supply medical practitioners who could cope with the physical difficulties which they were sure to meet. The country had no improved roads, and not overly good trails, even the streams had to be forded, could not be crossed on bridges. The doctor was frequently days in making the rounds of his patients, and horse back riding was the only means of getting about. The good practitioner in pioneer days needed to be physically, mentally and spiritually fit.

#### DR. NICHOLS HARD

Dr. Nichols Hard was descended from a long line of educated ancestors who had lived in the state of New York. He was one of four brothers, each of whom studied medicine, and three of whom were among the ablest practitioners in northern Illinois during their lifetime. Nichols Hard was born July 4, 1818, probably at Geneva, New York.

While his sons were still young, the father, Peter Nichols Hard, moved from New York to Grass Lake, near Dexter, Michigan, where he was drowned in 1837. Thrown on his own resources when eighteen years of age, Nichols matriculated in the Medical College of Ohio at Cincinnati in 1839, and graduated from that school in 1841, when twenty-two years old. One week after his graduation he began a journey by boat from Cincinnati to New Orleans. A little "Journal," which



DR. NICHOLS HARD  
1818-1851



he kept during the trip, enables us to form some picture of this modest, enthusiastic youth, and to recognize the qualities which characterized him always. There is evidence of his acute power of observation, interest in the objects of nature, love of the beautiful, and a gentle humor. The first entry in the "Journal," a farewell to the "Queen City," "Peace be within thy walls, where I have passed hours of sadness and moments of bliss," suggests that he had not secured his medical education without a struggle.

Reference is made to points of interest along the Ohio and Mississippi rivers. At North Bend he saw the "log cabin" of President Harrison and remarked: "Here from this spot on the banks of the Ohio, have the millions of freemen chosen a Chief Magistrate—whether in wisdom or weakness, time will soon inform us."

Near Baton Rouge, he accomplished the principal purpose of his journey, in visiting a half-brother, whom he had never seen. This half-brother, Anson Owen Hard, was his senior by five years, and had received the degree of M. D. from Yale College in 1836. He was practicing medicine at Stony Point, near Baton Rouge, La. The "Journal" ends at New Orleans, of which he wrote with much interest.

In the fall of 1842 we find him at St. Charles, Illinois, beginning his successful career as a teacher, and writing enthusiastic letters of his work and prospects to Eunice Farnsworth, whom he married April 9, 1843. He continued to teach in the medical school operated by George W. Richards and to practice medicine at St. Charles until 1845, when he moved to Aurora, Illinois.

In 1844 Nichols Hard became professor of obstetrics and diseases of women and children in the medical department of La Porte University, and served in this capacity until 1850, when the school was discontinued. Two addresses prepared by Hard while connected with the medical school at La Porte have been found. One is a valedictory address given at the close of the session in 1846, entitled, "The Practice of Medicine—Its Roses and Thorns—the Way to Secure the Former and Avoid the Latter." This address is well written, showing a good command of English and presenting a great fund of valuable information and advice to the graduates in a logical and pleasing manner. The other address is an introductory lecture read in 1848. He then departed from the common custom and presented a discussion of a purely scientific subject. The subject of "Atresia Vaginae" was discussed in a masterful manner, illustrated from personal experience showing his skill as a teacher and writer.

From the time he located in St. Charles, until his death, he was a popular preceptor of medical students, large numbers of whom came to him for instruction.

At the meeting of the Fox River Medical Association at Elgin, February 1, 1850, he "delivered an able and interesting address on cholera, showing its contagious character as exhibited in the epidemic of 1849, especially in that which appeared at Aurora, Kane Co., Illinois, the fallacy

of specific cures and the departure from the usual concomitant symptoms as there exhibited."

In 1850 N. Hard was made professor of anatomy in the University of Iowa at Keokuk.

In the summer of 1851 he contracted cholera and, with impaired health, an attack of dysentery caused his death, October 16, 1851. A colleague wrote of him: "Prof. Hard maintained a good character as a pleasing and instructive lecturer during his connection with the medical schools at La Porte, Indiana, and Keokuk, Iowa, and enjoyed a high reputation as a practitioner in Aurora, Illinois, the place of his residence. He had been cut down in the prime of life and in the midst of his usefulness." Speaking of the medical school at Keokuk, Keabbs, of the class of 1852, said: "Late in the fall of '51 Professor Hard died. This was in many ways a loss to the college. He was a strong, level-headed man and had more students than all the other professors combined, except Professor Richards."

N. Hard was fond of the best literature, and had excellent musical taste, as had also his wife. They were the first in Aurora to possess a piano. He collected a cabinet of geological specimens and wrote shorthand.

The records of the life and activities of Nichols Hard are few, but there is sufficient to show that his was an unusual character. He had an excellent reputation as a popular teacher and able practitioner. Kindly toward others, he received an unrelated orphan girl into his family, and took an active part in the education of his two younger brothers. Both brothers became able physicians, Chester Hard in Ottawa and Abner Hard in Aurora, Illinois. His life work was completed when he was but thirty-three years of age.

#### DR. MOSES L. KNAPP

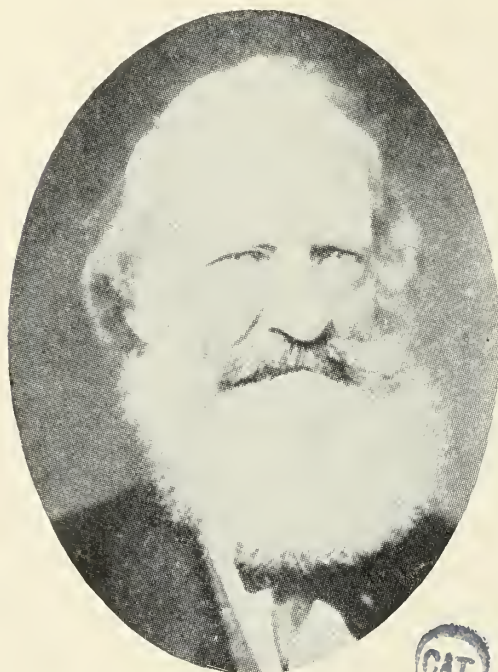
In his association with newly organized medical schools in the West, the subject of this sketch had unusual experience. He was a private student of George McClellan when the latter organized Jefferson Medical College, and graduated in the first class sent out by that school. He was on the original faculties of two of the medical colleges in our State, and for some time was professor in the La Porte Medical College of Indiana. He rightly referred to himself as a "New-Schools Man."

Moses L. Knapp was born in Barkhamstead, Connecticut, on November 25, 1799. He was educated in the common schools of Oxford, New York, and in 1825 he matriculated at the first session of Jefferson Medical College, Philadelphia. He was one of the twenty men who formed in 1826 the first class graduating from that institution. He



stood at the top of his class, and his thesis, "Apocynum Cannabinum," was the first handed in and the first thesis from Jefferson Medical College to be printed. In the first edition of the "Dispensatory of the United States of America," by Woode and Bach, the thesis of Knapp is referred to as the principal authority on Apocynum, or Indian Hemp, and quotation is made from it.

After graduation he located in Baltimore and practiced there until about 1831, when he migrated to Illinois. In August, 1831, Dr. Knapp married Mary Jane Long, and went to Springfield to live. Here he practiced medicine for about three years.



DR. MOSES L. KNAPP  
1799-1879

He bought large areas of land, becoming one of the largest land owners in Logan County. After the financial panic of 1837 his land values shrunk, and there was no money to pay taxes. He moved his family to Waynesville, Illinois, and later to Middleton, and continued to practice medicine. In 1848 he moved his family, consisting of wife and five children, to Chicago, where he followed his profession until 1851. His home was at 96 Clark Street, opposite the public square now occupied by the city and county buildings. Everywhere he was a leader in all social and political activities. When Rush College was organized in 1843, Knapp entered the faculty as professor of obstetrics, still residing at Waynesville.

From 1845 to 1851 he resided in Chicago and practiced his profession and was professor of chemistry in the University of St. Mary's of the

Lake. He served as professor of Materia Medica in Indiana College, at La Porte, from 1844-1846, and while he does not appear among the faculty of 1846-1847, he delivered the address to the graduating class in 1847. In the autumn of 1848 he delivered the opening address at the first session of the Rock Island Medical School, in which he was president and professor of materia medica and therapeutics. The following year he followed this migrating school to Davenport, Iowa. In 1850 his health was such that it was deemed wise for him to seek a milder climate. At this time he was given a certificate as to his character and ability, signed by many prominent citizens of Illinois. His colleagues on the faculty gave him certificates to use in establishing himself in new surroundings.

In 1852 Knapp moved his family from Chicago to Covington, Kentucky, where he engaged in active practice.

In 1855 he published a book on epidemic cholera and an essay on cholera infantum, and in 1856 a book on nursing sore mouth.

In 1857 and 1859 he published what was generally known as "Knapp's Pathology," in two volumes, in which he elaborates a scorbutic diathesis as the explanation of almost all disease processes. He insisted on the daily use of fruits and fresh vegetables in scorbutic cases, in opposition to the general use of farinaceous foods. The dietetic innovations which he advocated came at a time when depleting measures, such as blood-letting, etc., were falling into disrepute. The measures he urged were accepted by many physicians throughout the country, and were found to be useful in treating the sick. He anticipated by two generations much that is now considered new in the vitamin regimen. Fruit juices were given to babies, and milk, ripe fruits and vegetables were urged as important articles of diet.

While he was in Philadelphia, supervising the publication of his last work, he suffered severe pulmonary hemorrhage, and in 1860 went to Metamoras, Mexico, hoping the warmer climate would be beneficial to his health. With restored health, two years later, he located at Cadereyta, State of Nuevo Leon, Mexico, and there successfully practiced medicine until he died of pneumonia on his eightieth birthday, in 1879, having been in the active practice of medicine more than fifty years. His remains lie in the Campo Santo in Cadereyta.

While in Illinois, Knapp was especially interested in general education, having manifested special interest in the State Common School Convention, held in Chicago in 1846. He was popular as a teacher, and his writings show that he was possessed of much literary ability.

(To be continued)

# THE JOURNAL BOOK SHELF

## BOOKS RECEIVED

**A DIABETIC MANUAL**—By Edward L. Bortz, M.D., associate professor of medicine, Graduate School of Medicine, University of Pennsylvania. Illustrated. F. A. Davis Company, Philadelphia, 1936.

**ADULT EDUCATION**—By Lyman Bryson, professor of education, Teachers College, Columbia University, New York. American Book Company, Cincinnati, 1936.

**ARTHRITIS AND RHEUMATIC DISEASE**—By Maurice F. Lautman, M.D., consultant to the U. S. Public Health Service Clinic. McGraw-Hill Book Company, 330 West 42nd Street, New York, 1936. Price, \$2.00.

**AN INTRODUCTION TO MATERIA MEDICA AND PHARMACOLOGY**—By Hugh Alister McGuigan, M.D., professor of materia medica, pharmacology and therapeutics, University of Illinois, College of Medicine, Chicago. With 71 text illustrations and 18 colored plates. C. V. Mosby Company, St. Louis, 1936. Price, \$2.75.

**CHEMICAL PROCEDURES FOR CLINICAL LABORATORIES** By Marjorie R. Mattice, A.B., Sc.M., assistant professor of clinical pathology, New York Postgraduate Medical School of Columbia University, New York. Lea and Febiger, Philadelphia, 1936. Price, \$6.50.

**FUNDAMENTALS OF HUMAN PHYSIOLOGY**—By the late J. J. R. Macleod, M.D., D.Sc., F.R.S. late regius professor of physiology, University of Aberdeen, Scotland, and R. J. Seymour, M.D., professor of physiology, Ohio State University. Fourth edition, C. V. Mosby Company, St. Louis, 1936. Price, \$2.50.

**INTERNATIONAL CLINICS, Volume III, Forty-sixth Series**—Edited by Louis Hamman, M.D., visiting physician, Johns Hopkins Hospital, Baltimore. J. B. Lippincott Company, Philadelphia and London, 1936.

**MICROBIOLOGY AND PATHOLOGY FOR NURSES**—By Charles F. Carter, M.D., Director of Carter's Clinical Laboratory, Dallas, Texas. With 138 text illustrations and 14 colored plates. C. V. Mosby Company, St. Louis, 1936. Price, \$3.00.

**PRINCIPLES OF CHEMISTRY**—By Joseph H. Roe, Ph.D., professor of biochemistry, School of Medicine, George Washington University. Fourth edition. C. V. Mosby Company, St. Louis, 1936. Price, \$2.75.

**SOCIAL ASPECTS OF THE BANANA INDUSTRY**—By Charles David Kepner, Jr., Ph.D., Columbia University Press, New York, 1936.

**A TEXTBOOK OF NEURO-ANATOMY**—By Albert Kuntz, Ph.D., M.D., professor of micro-anatomy, St. Louis University School of Medicine, St. Louis. Second edition enlarged and revised. Lea & Febiger, Philadelphia, 1936. Price, \$6.00.

**A TEXTBOOK OF PATHOLOGY**—By W. G. MacCallum, professor of pathology and bacteriology, Johns Hopkins University, Baltimore. Sixth edition, 1277 pages with 697 illustrations. W. B. Saunders Company, Philadelphia and London, 1936. Price, \$10.00.

**TISSUE IMMUNITY**—By Reuben L. Kahn, M.S., D.Sc., University of Michigan, Ann Arbor, Michigan. Charles C. Thomas, Springfield, Illinois, 1936. Price, \$7.50.

## BOOK REVIEWS

### DISEASES OF THE AIR AND FOOD PASSAGES OF FOREIGN BODY ORIGIN

By Chevalier Jackson, M.D., and Chevalier L. Jackson, M.D., Temple University. 994 pages with 2,000 illustrations. W. B. Saunders Company, Philadelphia and London, 1936. Price, \$12.50.

This volume has been compiled for the use of the general practitioner and summarizes the enormous mass of clinical data accumulated by the authors.

The first chapter deals with the source of foreign bodies which are commonly found in the air and food passages, while Chapter II discusses the prophylaxis of the occurrence of foreign bodies in these passages. Chapters III and IV present the pathology and symptomatology respectively, while Chapters V and VI deal with the treatment employed in these cases.

This subject material occupies less than half of the total page space of the volume. The remaining larger portion is devoted to a classified tabulation of the various foreign bodies endoscopically removed from the air and food passages with illustrations of the foreign bodies and all facts pertaining to their removal. Some 3,000 cases are reported, giving the reader data concerning practically every type of foreign body which has or may be encountered, and at the same time furnishing sufficient information to guide the practitioner in dealing with a similar condition.

The authors, in appreciation of the fact that the general practitioner is commonly the first to see pa-

tients suffering from foreign bodies, have prepared the text especially for the guidance of the general practitioner. However, the volume will be equally valuable to those specializing in this line of work, the ear, nose and throat specialist, the x-ray specialist and the research worker.

### A MANUAL OF PHARMACOLOGY

By Torald Sollman, M.D., professor of pharmacology and materia medica, School of Medicine, Western Reserve University, Cleveland. Fifth edition, entirely reset; 1190 pages with 22 illustrations. W. B. Saunders Company, Philadelphia and London, 1936. Price, \$7.50.

This work originally appeared in 1917 and its dominant objective is to furnish medical students and interested practitioners with an outline of the current conception of the action of drugs, especially as they are employed in the practice of medicine. Through numerous revisions the authors have kept the text in step with modern research and practice. The volume, while encyclopedic in its scope, lends itself to ready reference because of the paragraphic form and the complete cross-referenced index. The revision considers those newer preparations included in the recently revised United States pharmacopoeia, as well as the British pharmacopoeia, and further reviews some of the newer preparations, particularly



the biologic ones, which have not as yet been listed in these official compilations.

An extensive bibliography is furnished at the end of the subject matter, so that the interested, advanced student may pursue his reading through well-chosen and productive references. The volume appears entirely satisfactory for the purpose intended.

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#### A TEXTBOOK OF PATHOLOGY

By W. F. MacCallum, professor of pathology and bacteriology, Johns Hopkins University, Baltimore. Sixth edition, 1277 pages with 697 illustrations. W. B. Saunders Company, Philadelphia and London, 1936. Price, \$10.00.

This sixth edition of this well known and favorably accepted treatise on pathology follows the plan of organization employed in the earlier editions.

Instead of discussing pathology by organs or by system, the authors prefer to discuss disease entities and detail the pathology present in the various organs of the body and the relation of this pathology to the symptoms observed, the prognosis offered, and the treatment suggested. Because of this viewpoint, the text in many ways is not markedly dissimilar to a text on clinical medicine and certainly should be considered as complementary to the study of clinical diagnosis.

Through well chosen illustrations the authors reflect appropriate museum specimens and microscopic slides. Critically selected bibliographic references are furnished for the advanced student in this subject.

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#### A TEXTBOOK OF PHYSIOLOGY

By William H. Howell, M.D., emeritus professor of physiology, Johns Hopkins University. Thirteenth edition, thoroughly revised, 1150 pages with 308 illustrations. W. B. Saunders Company, Philadelphia and London, 1936. Price, \$7.00.

Since the first edition of this important work appeared in 1907, it has been recognized in many teaching institutions, research laboratories and in the reference libraries of physicians as an eminently satisfactory treatise on the subject. Its popularity is further emphasized by the fact that it is now in its thirteenth edition, having been revised and re-edited every two or three years since its introduction.

The original plan of the author to present the essential information in the most simple and lucid style, together with a judicious limitation of the material incorporated, has been maintained in every revision so that the volume today is of convenient size and entirely comprehensible to the average medical student or practitioner. The author indicates that while the field of physiology is a constantly expanding one, this field has shown its most marked activity during the past two or three years

in the field of biochemistry, as indicated by the marked success in the analysis and synthesis of various biologic compounds which have recently been reported in the literature and which add so signally to the theory and practice of medicine. Howell's physiology continues to merit its position of distinction as a textbook in this basic medical science.

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#### WILLIAMS OBSTETRICS

By Henricus J. Stander, M.D., professor of obstetrics and gynecology, Cornell University Medical College. Seventh edition; a revision and enlargement of that text originally written by J. Whitridge Williams. D. Appleton-Century Company, New York and London, 1936.

In 1903 Dr. J. Whitridge Williams first offered to the medical profession a textbook on obstetrics. The simplicity and clearness of the text immediately warranted hearty favor and the work was accepted as a teaching guide in many medical schools. Until 1931 when the sixth edition of this book appeared, Dr. Williams remained its active editor.

The present revision which maintains the original plan and much of the original text of the sixth edition, has been prepared by an experienced obstetrician whose purpose has been apparently that of bringing the text up to date rather than one of offering a new text on this subject. The present revised edition should receive widespread acceptance, since simplicity and conciseness still characterize every discussion and since no phase of obstetric theory or practice has been slighted or neglected.

The volume is well illustrated, fully indexed, and contains adequate bibliographic references to easily accessible literature.

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#### A TEXTBOOK OF OBSTETRICS

By Edward A. Schumann, M.D., professor of obstetrics, School of Medicine, University of Pennsylvania. 780 pages with 581 illustrations. W. B. Saunders Company, Philadelphia and London, 1936. Price, \$6.50.

This entirely new work in obstetrics has been prepared for students and practitioners as a guide to the theory and practice of this branch of medicine. The author has stressed the mechanics and physiology of labor, together with its common complications, but has avoided controversial subjects or unproved theoretical considerations.

The general form of presentation follows that commonly adopted, although it would appear that the author has conserved text space through the use of an unusually large number of well chosen illustrations, as well as an outline form where this handling of text material is possible. Its more condensed form will no doubt have especial appeal to the student, although condensations are very definitely appreciated by the busy practitioner. This text appears to be a very adequate guide to obstetric practice.

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## CHRONIC MASTOIDITIS AND ITS THERAPY\*

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It has been suggested that I speak to you on the chronicity of middle ear disease. To understand the modern conception of chronicity, the first thing one must bear in mind (and to most of you I apologize for the restatement of fundamentals because I know you are familiar with them, but it makes the framework of the picture I am presenting) is that chronicities are no more considered in point of "time." We have no right to diagnose a lesion by a stopwatch or a calendar. We must diagnose a lesion by a pathologic finding. It is unscientific and impractical in the understanding and comprehension of lesions of the ear, suppurative lesions of the ear, to say that a lesion is chronic because it runs three days or three weeks or three months, and that it is acute because it only ran an hour. In other words, we have dropped the naming of a disease as a chronicity in terms of "time." If one has a cold and a cough which lasts only a week, it is termed an acute cough; if it lasts a month, it is a chronic cough. Time is an element there, but that is not a pathologic diagnosis. We are endeavoring to handle our chronicities much more intelligently by dropping the idea of time. Today we often can say the disease is chronic, two seconds after it starts. If an otologic suppurative disease is chronic, it has nothing to do with its duration in time. In some instances a chronic lesion of the ear can be cured in a week, yet it never was an acute lesion; it was a chronic lesion. In other words, we are attempting to make a pathologic diagnosis rather than a diagnosis by the calendar or watch.

The next important feature is first hand knowledge of the character of bone upon which the lesions develop. One type of lesion will develop upon sclerotic bone; a different type will develop upon pneumatized bone; and a still different one upon diploic bone. They do not run the same clin-

ical course, they do not heal the same way, nor are the results the same. It follows then that there is no single operative technic applicable for all of them. The pathology present should indicate the type of surgery necessary for each patient, and it is necessary and proper that this estimation be arrived at as soon as the patient is seen. Each patient should have an x-ray examination, not to determine whether he does or does not need an operation, although that may be useful; but because it is necessary to know the nature of the lesion.

The chronicity may have started without any pain. The patient was not ill, but suddenly had a discharge from the ear. An examination of the ear will reveal multiple perforations or a few scars and a perforation; in other words, a suppurating lesion on pneumatized bone. Only two conditions cause multiple perforations or multiple scars on pneumatized bone; one is syphilis and the other is tuberculosis. Syphilis is easily eliminated by the Wassermann test; tuberculosis by a thorough chest examination, because tuberculosis of the ear is never primary, but always secondary. If the primary lesion is active, it needs immediate attention. If it is not active and is scarred, the ear must be treated locally. If it is specific, there are the anti-specific remedies. This is an example of the co-relation of the otoscopic picture and knowledge of the type of bone present.

After the above two conditions have been eliminated, if the patient still shows that his temporal bone is pneumatized, and if his ear has been running for some time, a more extensive history is indicated. Close questioning may bring out the fact that the patient had scarlet fever during his early school life. I know of only one pathologic lesion in which the discharge begins early and continues into later life. It starts with exanthemas, with no exceptions, and is the acute, necrotic otitis of Witmaack. The drum finally goes by necrosis; the promontory becomes eroded; ulcers and scar tissues form; multiple granulations form in the middle ear, and a pus discharge continues for an

\*Presented before the Eighty-fifth Annual Session, Iowa State Medical Society, Des Moines, April 29 and 30, and May 1, 1936.



indefinite length of time. The x-ray picture shows pneumatized bone in the mastoid process. Another type may show chronicity as the result of gripe, suffered by the patient during one of the periodic epidemics of influenza, which may have started postpneumonic, that is pneumatized mastoid, perforation in the anterior quadrant or the posterior quadrant of the drum, but not necessarily in the Shrapnellian area. There will be pneumatized bone in a fistula discharging from the petrosa. This description covers all the types of cases one sees of pneumatized bone.

In the diploic bone one will find minute areas of osteomyelitis. The patient is over the intensive osteomyelitic stage, and microscopically, here and there in the epitympanic space, toward the front in the tissue surrounding the semicircular canals, or back in the epi-antral region toward the roof and back of it, one will find involvements which a pathologist would designate as osteomyelitic in nature. It is not a mass lesion; it is a small localized area, sometimes with multiple lesions. What is nature doing? Nature is doing what she does in osteomyelitis of the long bone. She is making small sequestra and throwing them off into the discharge. As they gradually decalcify, they come out. Some years ago an effort was made to find a differential diagnosis in the chemical study of the calcium content of the discharge from the ear. The discharge showed a high calcium content, because the minutiae of dead sequestra which is thrown out, makes a high estimation of calcium. The procedure is too complicated for ordinary routine diagnosis, but it establishes a lesion. When a diploic bone, with a long standing discharge, is found upon x-ray examination, one can be almost always sure he is dealing with a chronic condition.

The final, and most common, type is the sclerosed, so-called ebonized, ivory-hard bone. Characteristic of the condition is a long standing discharge, drums in a more or less advanced stage of destruction, and certain degress of repair. With each cold and with each depression of vitality, the disease process advances.

From these facts one can draw certain conclusions in each case. If diploic bone or ebonized bone is present, the condition is chronic; and a diagnosis of chronicity may also be made if one finds large defects, ulcerations, multiple perforations and multiple scars with pneumatized bone. Acute mastoiditis can be ruled out in all patients showing ebonized bone, because the onset of bacterial invasion will enter any of the preformed anatomic channels, or will create reactions in the internal ear, in the meninges, or through the blood channels, long before the ivory hard bone breaks

down under bacterial attack. It is well to take an x-ray picture in these acute cases, so that the patient can be assured he does not have acute mastoiditis, but rather a chronic condition in the ear which will require weeks or months of treatment. In this way the physician will not be annoyed by the patient comparing his trouble with that of his neighbor or friend, who may also have had a discharging ear which was "cured" by some other physician in four weeks. When the patient understands that his condition is not identical with that of his friend, he will have more confidence in his own physician.

What is the explanation of the continuous discharge in the chronic cases? As soon as the acute stage is passed, nature steps in and tries to heal the ear. An effort is made to cover the exposed and eroded areas with epithelium from the remnants of the drum and from the external auditory canal walls; but because the area is not equally exposed and because there are erosions, detritus, depressions and elevations, this ingrowth does not proceed smoothly. Part of this living epithelium, which replaces the diseased tissue already there, invariably curls on itself and continues to grow, producing a pseudo-cholesteatoma. This cholesteatoma is nothing less than the defeated effort of nature to make a scar and heal the case. It is epithelial tissue mixed with fat and cerumen, kept at body temperature, away from sudden drafts, two inches inside the head. Saprophytes and secondary invaders from the air enter and add another factor to the vicious cycle of events which prolong the suppuration. This secondary invader feeds on the dying and necrosing epithelial tissue that failed in its effort to accomplish nature's purpose to line the cavity in the sickened ear.

Understanding this procedure of invasions and involuted epithelium, the center of which has died, the periphery of which is alive and called a matrix, intelligence rejects the idea that the injection of a few vaccines will halt nature's ingrowth of epithelium or check the saprophytic infections and secondary invaders that feed on this nutritive material prepared for them in the middle ear and epitympanic cavity. However, it is possible to raise the resistance of the patient and create an immunity to subsequent secondary invaders, by removing from that cavity every vestige of decayed tissue, all the moisture, the cerumen and fat, and the dirt, dust and detritus which remain as the culture media for these bacteria. The inevitable process of repair will continue, and if elevations and depressions are present, that process will create a cholesteatomatous mass, but other means are available to handle this mass. Absolute alcohol, or as near absolute alcohol as can be obtained, in-

jected into the canal will very often wash out large quantities of this dead, decayed, foul, putrefying tissue. The matrix will not be washed out because it is very strong and well supplied with fine blood vessels. A patient can be carried on this treatment of absolute alcohol injections for an indefinite period of time until an incident takes place which brings the matter to a dramatic climax. For instance, a child has ebonized bone and an infected ear as a result of scarlet fever. He is carried along safely enough until summer, or even for a year or two, and then in the early spring he goes in swimming. All this dead tissue needs is the addition of water. It swells up like a sponge; the patient comes home not only bathed, but with vertigo and headache because the pressure is unbearable. Something gives; perhaps the hypotympanum which produces an acute secondary lesion; or perhaps the labyrinth, in which case there is an acute involvement of the labyrinth.

What is gained by waiting for this incident to occur? Why not open the lesion to the air, clean out the detritus surgically, and start the epithelium on a smooth road where it cannot curl upon itself hereafter? An excuse often heard is that the physician wishes to preserve the patient's hearing as long as possible. I have seen some of those patients whose hearing has been "preserved;" I have kept a record of them, and after twenty years they had very little hearing preserved. In other words, while various modes of palliative treatment are being tried, the patient's hearing is progressively getting worse, and when he eventually must have what we call the radical operation, he has very little hearing left. On the other hand, a tympanomastoid operation performed on the patient in the early stage of the disease will not deprive him of much hearing ten years afterward. These cases should be viewed from a preventive standpoint. For instance, the patient is a boy ten years of age. What will be the condition of his hearing when he is thirty years of age? An early operation will result in a loss of approximately twenty per cent of hearing acuity on the audiometer. The same patient, after twenty years, during which he has received nothing but palliative treatment, will show about a twenty per cent loss. In other words, the end result is almost the same amount of loss of hearing, except that in one case the patient's lesion is definitely and finally healed when he is ten years of age, and in the other, after twenty years of palliative treatment, he is at last operated upon for a much more extensive lesion than was originally present. Which is the better?

I think the otologist has neglected the opportunity of doing preventive work in this respect be-

cause he is afraid of what the term "radical" treatment implies. As a matter of fact there is less surgery to be done in the so-called radical operation than there is in the complete, ordinary mastoidectomy, where the technic is more complicated and where much more thoroughness is necessary to achieve a rapid and sure result. In the radical operation the lesion is so sharply divided from the normal tissue that if the surgery is limited to the extent of the lesion, the procedure will not necessarily be extensive. We should forget the term radical mastoidectomy, and use the scientific term tympanomastoid operation. Perhaps in this manner we can more quickly come to a realization of what can be accomplished for this distressing condition by surgery. No one has a scientific right to say, "I am conservative in my treatment of these chronicities," or "I am radical in my treatment of these chronicities." Both are wrong; they are either *adequate* in their surgical therapy or they are *fruitless* in their therapy. Science must be impersonal and purely objective. The physician must realize that the patient has come to him for relief. If the physician can and does help his patient, he is adequate; if he does not, he is a failure, whether he classifies himself as conservative or radical. In the past few years methods of diagnosis and treatment have been standardized. Laboratories, pathologists and anatomists have combined their united efforts so that the individual otologist might approach his problems with a sound scientific solution in line with the findings of these research workers. Our duty is to bridge the gap from these laboratories to the bedside.

The patient with diploic bone tissue should receive the same consideration as outlined above for pneumatized bone. It is possible, if there are no signs of retention, to destroy the tissue by intervening through the meatus. Very often the ingrowth of epithelium can be started to cover the denuded area, but each succeeding year or six months shows a progressive loss of hearing. Is there anything worth saving in here? My advice is to remove en masse the infected area and its multiple areas of minute sequestra, and thereafter aid the epithelium to cover the area. The little ingrowths in those tissues from the middle ear from the epitympanic space are not sufficient, and it is frequently necessary to do some skin grafting.

Lesions in acute necrotic cases can usually be reached because they are in the epitympanic space on the promontory facing the examiner, and since the necrosis has destroyed the drum, one can see through its remains. Local treatment should be used until scarification sets in. If damage has been done, if there is a secondary invasion of the pneu-



matized cells, in other words if an acute coalescent mastoiditis is superimposed on the chronicity in the middle ear, a mastoidectomy is indicated. It is then time to decide whether to connect the two cavities, or to let the mastoidectomy heal and the chronicity continue indefinitely. Personally I prefer to connect the two cavities. I put a skin graft in the big cavity and guide the ingrowth of epithelium over the top of the remains of the ridge, because I do not like the large holes which are present if this is not done.

Why has the tympanomastoid operation fallen into disuse? It has been discredited because incorrect cases were submitted to it. We did not know that the ebonized bone was normal bone for that patient, and laboriously, with hammer and chisel, like a stone cutter, we dug it out. The result was a devitalized base upon which to set tissues, and recurrences and breakdowns of those tissues took place because we did not study nature's effort at healing. Since we have recognized the natural healing process, we have very little trouble with these patients. They are usually out of bed in about four days, and most of the ears are dry shortly thereafter. A certain percentage will have secondary infections. Muscle slough will occur, particularly in old men and women who have a constitutional dyscrasia; I have operated upon diabetic patients who later developed muscle necrosis; but all of them have eventually healed. The trick is to stop using the chisel and hammer and instead use a bur, kept cool with oil. When the operation is completed there must be no elevations on the surfaces which remain; the remaining wall must be as smooth as a sheet. I use a pair of glasses when performing this type of surgery, of the same type eye men use, to give me a magnification of two or three times. With these glasses I minutely inspect the bone surfaces. The operator must be able to put his probe as deep as possible, and remove it without "hitting" anything. The epithelium is coming over, and if it meets an elevation, it will turn on itself, thus producing the same situation for which the operation was performed, that is, a pseudo-cholesteatoma.

The postoperative care of the radical wound is more important than the operation. Nothing must be allowed to divert the epithelium from its onward march to cover the denuded areas. A word of caution is necessary in regard to the bur. It should not touch the cochlea. If it does, the semicircular canals will necrose, and begin to slough out in a few weeks. They slough out gradually, and compensation takes place as the process proceeds.

The type of flap which is cut is immaterial as long as epithelium is used. There is a physician

in Italy who has found a unique way of putting epithelium in the wound cavity. He scrapes the soles of the patient's feet and the palms of his hands, and blows this skin dust into the wound. Here and there a vital piece, with some blood vessels, attaches itself, and he reports very rapid epidermization. In those cases where nature has already developed a matrix, I see no reason for disturbing it. If the remaining tissue around the matrix is made completely smooth, the rapidity with which it will grow is astonishing. The result is a small cavity, entirely lined with epidermis, in which concretions and detritus cannot collect. The tube may or may not be open. I always curet the tube; it does not, however, seem to make any difference. We know that the tube is lined with ciliated epithelium which ordinarily protects the middle ear. When we blow our noses, we do not blow secretions into the ear. The tubotympanic mucous membrane is not a secreting membrane, so there is nothing to blow in the ear through the eustachian tube after the operation which was not there before.

Otitis media from an upper respiratory infection is a hematogenous-borne disease. I say this because occasionally one of my patients, on whom I have performed this radical operation, develops an acute upper respiratory infection, which is very prevalent in New York in the winter. On his healthy side we find an acute suppurative otitis media, which requires paracentesis. In about ten days to two weeks the ear becomes dry and heals. Later the patient has a moist feeling about this ear. An examination of the ear which had been operated upon will reveal little ulcerations on the epithelial surface, some of which may become confluent on the second or third day. The epidermis has died from an infection which was hematogenous borne. My advice is to leave this ear alone, except to clean it with some boracic acid or bicarbonate of soda. As the acute condition in the one ear subsides, the epidermis again begins to cover the ulcerated areas in the other ear. If a cautery is used the underlying tissue beneath the dermal layer is destroyed, and a necrotic area is produced, the healing of which greatly taxes one's surgical ingenuity. It is for this reason that I believe the infection of otitis media is carried to the middle ear by blood vessels. All the mastoid cells and all the middle ear is involved simultaneously. In the acute case, there is a complete breakdown, sometimes at only one place, and everything else is found intact.

Certain it is that we are in the process of discarding old issues. In common parlance, "the world do move," and modern treatment should

move along with it. If surgery is limited to the lesion, as it is in Boston, there is no necessity for a retro-auricular incision, because the work can be accomplished through the meatus. In Italy many surgeons handle all these chronicities through the meatus; but that remains a matter of choice. I personally see no objection to making a postauricular incision, retracting the periosteum, and handling it from there, working backward, because much more room is available. This space can be used to a good advantage in leaving the smooth surface which is so essential, and it is easy enough to replace the periosteum and sew it together. I feel so much at home in this section that I wish you would lay aside the formality of "guest" and "audience," and I will be glad to try and answer any questions for you.

#### Discussion

**Dr. Dean M. Lierle, Iowa City:** Dr. Kopetzky as usual has given us a very instructive talk. He has shown us how essential it is that we have a thorough knowledge of the pathology and the anatomy of the middle ear tract for diagnosis and treatment. I was particularly interested in his discussion of the postoperative treatment of the tympanomastoid operation. There is no one treatment which is suitable for all cases. However, secondary Thiersch grafting has, in most cases, reduced the time of the postoperative treatment at least fifty per cent. We prefer a modification of the method suggested by Daggett and Bateman. Briefly, it consists of a Thiersch graft about seven days after operation when healthy granulation tissue is present. Wax is poured into the cavity to keep the graft in place. The wax is removed from the fifteenth to twentieth day and weak iodine or boric powder insufflated daily. The cavity is kept clean and granulations are treated with silver nitrate bead.

**Dr. Harold J. McCoy, Des Moines:** I would like to ask Dr. Kopetzky what he considers necrosis and bone involvement of the mastoid and the middle ear. I have always thought of necrosis as the destruction of these thin layers of bone forming cellular walls of the mastoid cells, and the extension is always more or less termed an extension of the necrosis, not as an osteomyelitis. Is not osteomyelitis an inflammation of medullary cavities and bone? Do these thin layers or cellular partitions have medullary cavities?

**Dr. J. A. Thorson, Dubuque:** Given two mastoid cases, one of tuberculous infection without lesion in the lung, and another infection, such as has been described by Witmaack, how would the treatment differ?

**Dr. Kopetzky:** Necrosis is a lay term which has crept into our vocabulary. I make a diagnosis of a necrotic type of ear if I know that I am dealing with a chronic condition, and if I find multiple granulomata, a discharge, a pneumatized or a diploic bone. The difference in the treatment of tuberculous infection and the ordinary treatment I have just described

is this. In the tuberculous lesion, one has to do a very extensive exenteration, and either the Thiersch graft or some other form of skin graft is usable. A large opening should be kept for aeration. I dissect some of the cartilage of the external auditory canal so as to have a broad opening to provide this aeration. The specific lesions need no treatment other than the general treatment for their infection. They handle themselves, scarifying and healing.

My own particular technic for skin grafting differs considerably from some procedures. In the first place I use no pack. Flaps are sutured back in position and fixed where I want them, but I do not use a pack to hold them there, because it might shift or swell and press upon the facial nerve. Labyrinthine irritation, and headache and discomfort too often follow packing. After I have sutured the flaps in the desired position, I sew up the external wound, insert a piece of rubber dam, and let it remain there for forty-eight hours, at which time the stitches are removed and the drain comes out. Under direct illumination and with a suction tube, all particles of blood, secretion or coagulum which have formed anywhere in the cavity are painstakingly removed. The time spent in this procedure is sometimes greater than that required for the original operation. It is time well spent, however, because any debris left in this cavity constitutes an elevation over which the epithelium will eventually grow. When we can assure ourselves that there is nothing in the mastoid area to form a living piece of tissue, we can direct our attention to the epithelium.

In the Witmaack type of case, in the tuberculous type of case, in the diploic mastoid type, where I have made a large cavity, either at once or two or three days after the operation, dental wax is used to secure an impression of the inside of the ear. The graft is fitted over the cast and then replaced in the ear. The skin, as it is laid over the cast of the ear, will form a fold here and there. These should be straightened out and the surface made absolutely smooth like a glove over the finger. The cast is then replaced and a bandage put around it to retain it in position. Two days later it is removed and the skin is found attached. It may break down in a place or two, but there is no necessity for alarm if most of the area is covered. As I have said before, it saves an immense amount of time in covering that wound area. My associate, Dr. Almour, first used this method at our clinic.

Another interesting fact is that the whole graft need not be made out of one piece of skin. One piece will lay smoothly over one part of the cast, and another will fit nicely over some other part, with perhaps a bare spot between the two. Two, three or even more pieces may be used in one graft, and small niches may be cut to make the skin fit the cast. These patients are usually out of bed on the fourth day; the bandage is removed at the end of a week, barring secondary infections; and after that, it is purely a question of watching the epithelium grow inward.

In spite of all precautions, we sometimes find, in



the next three or four weeks, that a clot has organized and granulation tissue has been formed. This must be ruthlessly destroyed with a nitrate of silver stick. These granulations must be burned off until the epidermis comes over. If this is not accomplished, a false membrane will form and suppuration will continue.

**Dr. Wayne J. Foster, Cedar Rapids:** I think you have answered this question, but I was thinking of a boy, fourteen years of age, who came to me for advice. He had had scarlet fever two years previously, and about six weeks later started to notice a watery discharge in the canal. At least there was a discharge in the winter, although the family thought the ear was dry in the summer. There was a slight discharge when I saw him, there was an odor, and the x-ray showed a large pneumatic type of mastoid involvement, and a perforation over Shrapnell's membrane. He is perfectly well, and still has about 80 per cent hearing acuity.

**Dr. Kopetzky:** Your patient may present one of the variations of Witmaack. In my discussion I have given you cameo-like cut pictures of these types, whereas in reality, they merge. I feel that a physician treating a case of this nature gains nothing by palliation. That area where the lesion is should be cleaned and made accessible to the ingrowth of epithelium. If I were handling the case, my first step would be to remove a piece of the lateral wall, make it smooth, and see whether or not the ear might become dry.

#### INTRA-OCULAR LESIONS ASSOCIATED WITH PREGNANCY AND THEIR PROGNOSTIC SIGNIFICANCE\*

D. O. BOVENMYER, M.D., Ottumwa

The eye is a sensitive indicator of metabolic changes and of the presence of toxins in the body. Metabolic changes are normal to pregnancy and in many cases there is greater or less retention of toxins. Retained toxins may be those produced in the course of normal metabolism, but are especially those resulting from the metabolic processes peculiar to the pregnant state. It has been said that at least 90 per cent of pregnant women present some ocular symptom at one time or another during the nine months of their pregnancy, and this estimate does not seem surprisingly high when one considers the endocrine stresses of the period with their reflection in the vascular system, and the strain to which nutrition is subjected. Most of these ocular disturbances occurring in pregnancy are, however, fleeting and inconsequential. They disappear with improved nutrition, especially with adequate vitamin supply. Grave complications from the standpoint of the eyes are comparatively rare, but when they occur they are extremely grave

in significance, and require most prompt and most complete cooperation between the obstetrician and the ophthalmologist.

In the toxic pregnant woman the slightest disturbance referable to the eyes, a mere dimness or inconsiderable blurring of vision, is a danger signal. Control of the eye grounds of the toxic patient may give timely warning of a threatened catastrophe. The ophthalmoscope permits observation during their progression of pathologic changes, vessel spasms, hemorrhages, edemas, etc., in the eye grounds, which may precede or parallel in their course analogous changes in the liver, kidney or other organs, observable only after death. Stander<sup>1</sup> advises systematic examination of the eye grounds in pre-eclamptic women and in those suffering from pernicious vomiting, even if eye symptoms are absent.

Retinitis occurring in a pregnant woman may be connected with a chronic nephritis present before pregnancy, or it may be an expression of a toxemia of pregnancy which may or may not be giving rise to a concomitant pregnancy nephritis. Of the forty cases of retinitis in pregnancy in Schiötz's<sup>2</sup> statistics, in six it was not possible to demonstrate renal disease in the history, in the course of observation, or in the subsequent control. Usually, retinitis gravidarum does not make its appearance until the second half of pregnancy. If it occurs early, the gravity of the outlook is definitely increased. It may give rise to severe symptoms during labor or in the puerperium. It occurs in primiparas and multiparas, and age seems to have no bearing on the incidence. The symptoms appear gradually. Acs<sup>3</sup> lists them in order of sequence as follows: impairment of distant vision, mistiness of vision, photophobia and visual hallucinations, and, finally, in some cases, complete blindness.

The lesions in the retina are classified under three types: first, white spots and patches in the stroma; second, lesions at the blood vessels; and third, edema around the nerve head and in the region of the posterior pole of the eyeball. All three types of lesions may be found together or only one or two may be present. One type may predominate over the others. The characteristic star figure in the fovea, with or without irregular white patches scattered through the central fundus region, is seen when the first type of change predominates. The white patches are of two kinds, first of which are the sharply defined, punctate spots, found grouped or scattered in the outer layers of the retina, behind the vessels. These small patches change from white to yellow with time, and when they disappear they may leave behind pigmentation or depigmentation. Those of the second type are the so-called "cotton-wool

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patches," larger, with irregular, indistinct outlines, and sometimes merging together to form "map-shaped" patches in the central fundus region. Either of these varieties of white spots may persist or may fade away entirely. They are produced by fatty degeneration, ganglioform degeneration of nerve fibers, edema and exudation.

The vascular phenomena in the retina consist of dilated, engorged and tortuous veins, with the lumina of the arteries of normal or smaller than normal size. Arterial spasm or, according to Pillat,<sup>4</sup> more frequently a thickening of the arterial wall, is responsible for the latter finding. Hemorrhages into the retina are frequently present. For the most part, these are venous. They may be so small as to be hardly discernible or they may be profuse. They are sometimes so numerous that the observer with the ophthalmoscope may think at first that he is looking at a thrombosis of the central vein. Vandegrift<sup>5</sup> has pointed out that the hemorrhages take the form demanded by the retinal layer involved. "Small flame-like hemorrhages with or without exudation are in the nerve fiber layers and usually are symptomatic of chronic nephritis accompanied by arteriosclerosis, a pre-pregnant condition. The larger and indefinitely shaped hemorrhages are in the cellular layers, or subhyaloid, and are not typical of any particular form of distant pathology."

The third type of retinal lesion, edema around the nerve head and at the posterior pole of the eyeball, is very common, and in its earliest stage it may be the first symptom of vascular disorder in the retina. At this stage, however, it is difficult to find. When established it may be recognized by its grayish color and by dim or glistening lines in front of the retinal vessels, representing folds of the *membrana limitans interna retinae*.

A notable instance of permanency of eye ground changes after recovery from a pregnancy retinitis is reported by Genet.<sup>6</sup> A massive albuminuria appeared suddenly in the eighth month of pregnancy. Delivery was at eight and one-half months. Three days before delivery vision in the right eye disappeared almost completely and within the next few days vision in the other eye became markedly impaired. The eye grounds showed typical pregnancy retinitis with abundant white exudates. After delivery the albuminuria cleared up and vision was slowly restored. The woman has been in perfect health since, there have been no more pregnancies. At the present time, nine years later, the ophthalmoscopic picture is that of a choroiditis. If one did not know the history, Genet asserts, the present eye ground findings would lead one to think of a simple pigmented choroiditis, or of a

specific, tuberculous or other infectious etiology.

An important complication of retinitis in pregnancy is detachment of the retina. The mechanism of detachment in these cases is understood as follows: the local vascular disturbance due to the toxemia gives rise to the formation of transudates in the choroid or retina or both, and the process of separation is aided by the presence of edematous folds in the retina, which are likewise the result of the toxemia. Wagener<sup>7</sup> states that in a few cases the retinal detachment is primary in type, being caused by subretinal exudation of serous fluid which is not associated with pre-existing retinitis. Detachment of the retina is seen most often in patients with toxemia of the eclamptic type. It may be bilateral, bringing sudden blindness. The prognosis of retinal detachment in pregnancy is less grave than when detachment takes place from other causes, but considerable damage to vision must be expected when it is a complication of a severe diffuse retinitis which subsides slowly. In the favorable cases the retina reattaches itself promptly as the underlying fluid is absorbed and surprisingly good vision is regained.

What is the significance of a retinitis in pregnancy for the life, the vision, and the future health of the woman? The prognosis for life and health will depend largely on whether or not there is a chronic nephritis. Cheney<sup>8</sup> thinks that a pregnancy retinitis means a four to one chance that the patient has a nephritis. Schiötz believes that the prognosis for life or health of the woman who has a pregnancy retinitis depends upon the basic kidney disease. In view of the high probability (from his experience) that the woman who develops retinitis in pregnancy has primary renal disease, he holds the prognosis as to life to be doubtful. It appears from the reports of several authors that the usual period of postpartum observation does not tell the whole story as to the ultimate fate of women who have passed through a toxemia of pregnancy so grave as to be evidenced by retinitis. Masters<sup>9</sup> is inclined to think that most patients who display a pregnancy retinitis are candidates for permanent vascular and kidney damage. He found that, in general, the degree of the eye ground change indicated the prognosis for the health of the mother, and the longer the retinitis was permitted to remain, the greater was the possibility of subsequent damage to the mother's blood vessels and kidneys.

Because of the greater danger from a retinitis which has developed on the basis of a nephritis antedating pregnancy, it is important to find, if possible, some indications in the eye grounds to distinguish between the types of retinitis. Vande-



grift<sup>5</sup> points out that the presence of sclerotic arteries denotes a previous nephritis with an accompanying hypertension, and their absence denotes, though less positively, that the retinitis is gestative. du Toit<sup>10</sup> remarks that radially disposed streaks of exudate, the star figure, are looked upon as originating from a pre-existing renal disease. Vandegrift's observations on the significance of the form of the hemorrhages in this regard have already been mentioned. Nevertheless, it cannot be said that it is always possible to identify the type of toxemia with the ophthalmoscope. The ophthalmoscopic findings must be studied together with the general symptoms. Opinion is strongly divided as to the prognosis for the vision of the pregnant woman with retinitis. The view accepted by the majority seems to be that the prospects of return of good vision are favorable, with certain exceptions or qualifications, such as, that the chances are hardly favorable if there are changes in the macular region, or if there is retinal detachment or papilloretinitis.

Symptoms pointing to intra-ocular involvement and eye ground changes, showing that the toxins have attacked the retina and optic nerve, present to the physician the grave responsibility of deciding whether or not prompt emptying of the uterus is indicated to save the mother's life or to preserve her future health or vision. A distinction is made by, perhaps, the majority of writers on this subject, between retinitis with pre-existing kidney disease and retinitis with pregnancy toxemia only, it being felt that with the latter the mother can often be carried safely to term if she is carefully watched and the case is properly managed; whereas, if the toxemia of pregnancy is superimposed on chronic nephritis the appearance of retinitis demands immediate interruption of the pregnancy. Wagoner<sup>7</sup> holds that diffuse retinitis should not be allowed to develop and that termination of the pregnancy should be urged at the first indication of localized hemorrhage or of exudation into the retina. He believes that the beginning of retinitis marks the onset of irreparable organic changes in the arterioles and that a delay of a few days may result in considerable injury, which could be avoided by prompt termination of the pregnancy. In borderline cases many conditions will come up for consideration, such as the viability of the child and the length of time the gestation has still to run.

The pre-eclamptic woman and the woman with pernicious vomiting of pregnancy should have the eye grounds frequently controlled with the ophthalmoscope. Ocular complications are of serious import in pernicious vomiting; Stander<sup>11</sup> re-

gards the appearance of hemorrhagic retinitis in pernicious vomiting as absolute indication for immediate termination of the pregnancy. Bergmann<sup>12</sup> states that when a pregnancy retinitis occurs with amaurosis and eclampsia the prognosis is serious for both the mother and the fetus. This severe form, with progressive diminution or sudden loss of vision and the fundus picture of retinal edema, flame-shaped hemorrhages, exudates with stellate arrangement in the macula, possible papillary involvement and often with retinal detachment, occurs, he states, most often in multiparas and in the last three months of pregnancy, and always justifies the immediate termination of the pregnancy.

Instead of attacking the peripheral nervous system, as in retinitis, the toxins of pregnancy may attack the central nervous system in the visual center. The central action is mostly in the form of circumscribed vascular spasm, which may be localized also in other parts of the central nervous system. Here belong those cases of eclampsia with and without convulsions, with amaurosis, in which there are no changes in the eye grounds or at most a fleeting edema of the papilla. The visual disturbances may be caused by insult to the cortex. Bruce<sup>13</sup> states that this condition always clears up after parturition and that sight usually returns in forty-eight hours, whether labor supervenes or not, and there are no sequelae. Toxic amaurosis, he says, is one of our most valuable signs of an impending eclampsia. Wright, Nayar and Nayudu<sup>14</sup> observed practical blindness with normal eye grounds following the eclamptic state; they presume that the injury acted at a higher level than the third neurone.

It is well known that the anterior lobe of the pituitary gland enlarges greatly during pregnancy. In rare instances, where the anatomic relations are unusual or the enlargement is excessive, or an adenoma of the gland already exists as a basis for still further enlargement by the hyperplasia of pregnancy, compression of the optic chiasm may occur. This appears to be the explanation of certain disturbances of vision occurring in pregnancy and described by Fischer,<sup>15</sup> Winter<sup>16</sup> and Perényi.<sup>17</sup> The symptoms usually disappear after delivery. In one of Fischer's cases the temporal hemianopsia, produced by the compression, reappeared some little time after delivery. The explanation given is that there was a tumor of the pituitary gland: tumor plus hypertrophy gave rise to symptoms; tumor minus hypertrophy did not give rise to symptoms, until the tumor, in the course of its further growth, attained the size that it had had when the hypertrophy of pregnancy had been

added to its previous volume. In Winter's case roentgen ray treatment was applied at the seventh month of pregnancy, after symptoms had been present for three months. The radiation therapy brought the process to a standstill and a living child was born. The patient became pregnant again and on this occasion the ocular symptoms appeared in the sixth week. It was evident that a very slight degree of hyperplasia was now sufficient to produce symptoms; the vision, already impaired from the first pregnancy, became worse; waiting appeared to be contraindicated and the pregnancy was interrupted. Perémy's patient discovered by chance that she was entirely blind in the right eye; she had already been through three pregnancies. Since that time she had gone through two pregnancies and she thought that vision was a little less in the left eye. She was now again four months pregnant and vision in the left eye was rapidly becoming impaired. Since girlhood she had had slight frontal headaches. The ocular disturbances increased and pregnancy was interrupted. Vision improved for several months and then became stationary. There was complete loss of vision in the left half of the temporal field. The fields for red and green were concentrically narrowed. On questioning, the patient stated that for some time she had been obliged to turn her head well over to the left when crossing a street, to avoid being run over. The roentgen picture of the sella was normal. There were no nervous or endocrine symptoms pointing to the pituitary gland. The ophthalmologic report was: visual acuity 5/10, decoloratio papillae, temporal hemianopsia, nasal color fields retained. Perémy explains the case in this manner: the temporal hemianopsia indicates a lesion of the chiasm, or, as the other eye was amaurotic, a lesion of the opposite tract. The mild headaches since youth are explainable by injury to the optic chiasm from pressure by a benign neoplasm, such as a cyst of the pituitary gland, otherwise symptomless, except when enlarged by hyperplasia of pregnancy. In the earlier pregnancies the compression affected the optic nerve on one side and led to its atrophy; in later pregnancies, the hyperplasia of the pituitary gland being increased, the chiasm became compressed.

It thus appears that in cases of disease of the optic nerve in pregnancy, an hypophyseal origin of the disturbance should be suspected. Definite tumor symptoms need not be present; to save the sight, the continuing hyperplasia must be checked by emptying the uterus. Johns<sup>18</sup> thinks that field changes in pregnancy depend on functional modification rather than on enlargement of the pituitary gland. Finlay<sup>19</sup> has published two

series of studies on visual field defects in pregnancy without general complications, and is convinced that such defects of the nature of bitemporal contraction occur in a majority of cases of normal pregnancy.

It is increasingly clear that in certain of the complications of pregnancy, notably the toxic complications, the ophthalmologist can bring information of importance to the aid of the obstetrician, and the ophthalmologist has, on his part, the right to ask of the obstetrician due consideration for his point of view, the safeguarding of the future vision of the pregnant woman, even when this may conflict with the bringing into the world of a viable child. When ocular complications occur in pregnancy, the patient's best interest demands imperatively the most wholehearted and understanding cooperation between the representatives of the two branches of medicine concerned.

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#### Discussion

**Dr. Henry A. Bender, Waterloo:** Dr. Bovenmyer so well prepared this paper that he leaves little for me to add, except to emphasize some of the more important points.

In reviewing the literature on intra-ocular lesions in cases of pregnancy, hemorrhagic retinitis associated with vomiting of pregnancy has to be regarded



as one of the most grave prognostic signs. According to Stander of Baltimore, it is an absolute indication for the immediate ending of pregnancy. The patient with vomiting of pregnancy should be watched carefully with an ophthalmoscope, especially if blurred vision appears. Stander reports two cases of the above; in the first case pregnancy was ended eight days after the first eye symptoms appeared and the patient died; in the second case pregnancy was ended at once on the appearance of eye symptoms and the patient lived. An autopsy of the first case gave the assumption that hemorrhagic retinitis was definitely due to, or associated with, the toxemia of the vomiting of pregnancy and showed a change in the permeability of the capillary vessels.

Tillman of New York feels that hemorrhagic retinitis is not due to the vomiting of pregnancy *per se*, because autopsies have shown many similar lesions in the brain and other organs from other poisons, but because of the findings at the time of pregnancy he feels that they do present a most serious prognostic omen, and that the pregnancy should be terminated at once, if the patient can stand it.

Increasing blindness or dimness of vision is another grave symptom during pregnancy. It suggests that the patient is getting toxic, even though she may not show any toxic symptoms otherwise. It often precedes eclampsia, and on emptying the uterus the condition immediately disappears. Swift feels that this indicates a poison of the ganglia and optic nerves, which may result in optic atrophy. It can give a picture of retrobulbar neuritis with a gradual loss of vision, an early loss of color vision, tenderness in moving the eyeballs, or concentric contraction of the fields, all increasing with the blindness. When the uterus is emptied, the above symptoms disappear.

Another theory to explain the disturbed vision in pregnancy is given by Rosenbaum of Montreal. He feels that the women subjected to these toxic symptoms are born with weak eye tissues and that, due to the disturbed metabolism during pregnancy, the resistance of the tissues is weakened and impaired, and specific bodies or toxins are formed in the mother, placenta and fetus, which circulate in the blood stream and attack the eyes. These toxins formed during pregnancy are often shown first in the eyes and by watching these carefully other destructive lesions of the body can be prevented. Wagener of Rochester feels that in forty per cent of these cases arteriole lesions develop with a persistence of a high blood pressure. Bergmann states that fifty per cent of albuminuric retinitis cases with amaurosis and eclampsia are fatal. Because we find such a loss of life and destruction of tissue, it surely behooves us to urge induction of labor and abortion early, when we are asked to see cases of pregnancy where there is a sudden loss of vision, even though renal function and fundus examination are still normal; and practically force the ending of pregnancy in a case of hemorrhagic retinitis in vomiting of pregnancy, or albuminuric retinitis with amaurosis, a detachment of retina or other visible intra-ocular lesions in pregnancy.

## SYPHILIS VS. CARCINOMA OF THE STOMACH—THORIUM DIOXIDE INJECTION\*

### Case Report

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A white laborer, fifty-four years of age, presented himself at the Out-Patient Department on June 10, 1935, complaining of vomiting of eight months' duration, accompanied by weakness, fatigue, and a weight loss of 33 pounds. On questioning, it was brought out that he had begun to vomit shortly after the extraction of all his teeth two years before admission. He attributed this to faulty mastication because he could not afford to obtain dental plates. It was not until eight months before admission, however, that the vomiting became pronounced and frequent; and at that time he could not retain any solid foods, with the exception of jello, ice cream, and soft cereals. He became nauseated after eating, and would vomit about fifteen minutes after meals. There was no pain or epigastric distress. He denied using alcohol in any form.

Examination revealed a well developed and fairly well nourished, but rather pale individual, weighing 120½ pounds. Pupils and knee jerks showed normal reactions. The heart and lungs showed no abnormalities. His blood pressure was 100/65. The temperature and pulse were normal. There was a large mass, presumably the liver, in the right upper abdominal quadrant, which was firm, smooth, and not tender, and extended to the level of the umbilicus. Blood studies showed a white count of 8,800, a hemoglobin of 65 per cent (Tallquist), a red count of 3,500,000, and a four plus reaction to the Kahn test. The urine was negative. X-rays showed the stomach to be displaced to the left by a large mass on the right side of the abdomen. There was a fairly large filling defect of the pars media of the stomach, involving both curvatures.

We felt that we were dealing with an interesting diagnostic problem. The roentgenologic appearance of the stomach was suggestive of carcinoma. On the other hand, syphilis could give this appearance, but it is one of the less frequent types of luetic gastric involvement. The liver did not feel especially like a metastatic affair, and the mildness of the symptoms, the absence of pain, and the comparatively good appearance of the patient were all against a diagnosis of metastatic malignancy. The patient was presented at the clinic, where various interpretations were made by the medical and surgical staff. Were we dealing with a carcinoma of

\*From the Gastro-intestinal Clinic of Broadlawns General Hospital.

the stomach with a syphilitic liver, or was there luetic involvement of both organs, or carcinoma of the stomach with metastases, or finally, an early Laennec's cirrhosis, gastric carcinoma, and latent

at this time showed no change in the appearance of the stomach. His weight was 115½ pounds. He was put on an intensive course of potassium iodide, mercury, and bismuth. Arsenic was omitted because of the liver involvement. The therapeutic response was prompt and gratifying. Vomiting ceased almost at once, and he began to gain both weight and strength. He was kept in the hospital for four weeks, and then was followed in the Out-Patient Department.

Syphilitic gastric lesions often take a long time to heal. Sometimes no appreciable improvement will be noted by x-ray until after one or two courses of treatment. In the cases without hepatic involvement, we would ordinarily use large doses of neoarsphenamine in addition to the mercury and potassium iodide for six weeks. Three similar courses would be given at intervals of four months, using bismuth in the interim. In this case, marked improvement was noted when the patient was x-rayed on January 3, 1936, and he continued to do well clinically.

On May 28, 1936, approximately one year after he was first seen, we requested him to return to the Out-Patient Department for a check-up. He was doing very well, and had no symptoms. His weight was 139½ pounds, an increase of 24 pounds. The liver edge was now felt one inch above the umbilical level, and the spleen was no



Fig. 1. X-ray taken on September 5, 1935. Note filling defect in the stomach. Liver and spleen outlined with thorium dioxide.

lues? Syphilis can act as a predisposing factor in ordinary portal cirrhosis, and it can also directly cause a cirrhosis of its own, although the usual manifestations are a combined lesion with gummatous involvement, hepatitis, and cirrhosis.

Of all gastric cancers, those located in the pars media have the most favorable prognosis; first, because of accessibility (as distinguished from carcinoma of the fundus); and second, because of delayed metastases (as contrasted with the rich lymphatic drainage and early spread of neoplasms of the pyloric segment). It was felt that a therapeutic trial for gastric syphilis was indicated, but it would also be important to know if the liver showed metastases. Therefore, we injected 25 cubic centimeters of colloidal thorium dioxide (thorotrast) intravenously on each of three consecutive days, and x-rayed the abdomen twenty-four hours after the last dose. The mass in the right upper quadrant was seen to be a huge liver, with uniform, dense distribution of the dye. Several films were taken with varying technic, and close inspection revealed a delicate, reticulated structure such as is often seen in early cirrhosis. Metastatic malignancy could be definitely ruled out by the complete absence of filling defects. The spleen was found to be enlarged, and when this was noted, it was easy to palpate this organ, which had eluded us before.

For personal and family reasons, the patient delayed hospitalization until August 19. X-rays



Fig. 2. Better visualization of the liver and spleen.

longer palpable. The hemoglobin was 75 per cent and the red blood count 4,700,000. X-rays at this time showed a complete disappearance of the gastric filling defect. Much of the thorium dioxide had been eliminated from the body, although there was still enough left in the liver and spleen to cast a primary shadow of these organs.



## COMMENT

This case was interesting because of the many unusual features. The gastric lesion looked malignant, but with the enlarged liver, it was important to know whether we were dealing with metastasis, and therefore, an inoperable case. Positive serology complicated the issue. Statistics show that even in the presence of syphilis, latent or active, a gastric lesion of this type is more likely to be malignant than luetic. Since the thorium studies showed that the liver was not malignant, the possibility of the gastric lesion being syphilitic was enhanced. By the aid of the therapeutic test,



Fig. 3. Film taken May 29, 1936. The stomach shows a complete disappearance of the filling defect.

a presumptive diagnosis of gastric syphilis was made, and an operation was avoided. The diagnosis was definitely established later by the disappearance of the lesion in the stomach, as revealed by x-ray studies.

Thorium dioxide showed its usefulness in bringing out the liver structure in good detail. Had not the gastric lesion responded to the luetic therapeutic test (or had we been dealing with an uncomplicated case of gastric carcinoma) the diagnostic procedure with thorium would have been extremely valuable. By demonstrating the presence or absence of liver metastasis, the use of thorotrast will avoid many useless operations.

## THE ORTHOPTIC TREATMENT OF SQUINT\*

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The subject of orthoptic training is not new to any of you, especially to those who have been reading the various ophthalmologic publications of the past year or so. With a wealth of material already available on this subject no attempt at this time will be made to present anything new. The aim of this discourse will be simply to outline and discuss some of the less complicated and more practical methods of diagnosis and treatment of strabismus. The squint referred to in the following discussion is of the convergent type unless otherwise stated.

The average man practicing ophthalmology outside of the large clinics and medical centers cannot afford either in time or money to make use of the various instruments on the market that are designed for orthoptic treatment. Many of these instruments would necessitate an increase in the amount of office space as well as an increase in number of office assistants, which of course would not be warranted because of the limited number of squint cases. Fortunately, however, a very satisfactory technic can be worked out with a small and inexpensive armamentarium, which will prove to be quite gratifying both to the patient and the physician. Sanford R. Gifford of Northwestern University, said: "Office equipment need not be elaborate and need consist of only an amblyoscope, a stereoscope, Wells and Satler charts and a set of prisms". Guibor of the same institution, has this to say: "The instrument of most value in orthoptic training is the stereoscope; with it one may train fusion, increase fusion amplitude, dissociate convergence and accommodation training".

Before going into a detailed discussion of the orthoptic technic we should like to state a few pertinent facts which are the logical conclusions of men who have spent considerable time and effort in the treatment of squint.

1. In a true alternating squint, fusion is never present and can never be developed.
2. Amblyopia ex anopsia can be most successfully overcome under the age of seven; after this the cures diminish in number as the age increases.
3. The chances of a cure are greater in proportion to the normalcy of the visual acuity and the nearer the acuity of one eye to its member.
4. Fusion if once present is never lost and can be developed well into middle life.

By proper training both at home and in the office

we hope to produce the following results: normal visual acuity, binocular single vision with depth perception and stereopsis, parallel visual axes, and elimination of the habit of suppression. With these objectives in mind the following plan of diagnosis and treatment has been outlined.

#### HISTORY AND EXAMINATION

Upon the patient's first visit to the office a fairly complete and systematic history should be taken and an objective and subjective examination of the ocular muscles made. The history should elicit the following information: the age at which the squint was first noticed; the type of squint; (whether constant or occasional, binocular or monocular, etc.) the etiology, such as illness or injury; and previous treatment (have glasses been worn, were they fitted under drops, and did the squint improve; have orthoptic exercises been tried, and has the eye ever been patched). The examination should cover visual acuity with and without glasses; muscle balance, motility, fixing power and the angle of anomaly with and without glasses; and tests for simultaneous macular perception, fusion and stereopsis. With this information at hand the course of treatment may now be outlined and divided into the following procedures:

1. Atropine refraction and prescribing of lenses.
2. Improvement of amblyopia.
3. Overcoming of suppression.
4. Production of binocular macular perception.
5. Production of fusion and stereopsis.
6. Fusion amplitude training.

#### REFRACTION

The refractive error is found with the retinoscope after atropine has been used in both eyes for a period of from three to five days. In cases of simple hypermetropia or hypermetropic astigmatism or hypermetropic astigmatism compound, the usual practice is to correct fully the astigmatism and all but about one half diopter of the hypermetropia. The full correction will in many cases cause a blurring of the distant vision and react unfavorably on the angle of deviation. In myopia, myopic astigmatism and myopic astigmatism compound, the full error is corrected. If at first there is difficulty in wearing the glasses the continued use of atropine for several days may be advisable. Age should be no contraindication for prescribing of spectacles and there should be no excuse for their not being worn. The parents should be told the need for the glasses and how important it is that they be worn constantly. The management of the case should be explained to

them in detail and they must be impressed with their responsibility in carrying it out to the letter. They should be made to understand that much of the procedure is necessarily slow and tedious and that it may seem very foolish at times, but that if a cure is to be effected they must conscientiously perform their part in the treatment; otherwise only failure will result. After the child has worn the glasses for a short time and has become fairly accustomed to them, the visual acuity should be determined as accurately as possible. This, of course, is rather difficult to do with the average test chart, consequently we have designed one of our own which we find very satisfactory. It is not accurate when compared to Snellen type but it does allow one a very accurate check from day to day on the increase or decrease of the child's visual acuity.

#### AMBLYOPIA

Amblyopia is a diminished visual acuity without visible pathologic findings. After refraction in squint cases amblyopia is the first condition met with which must be overcome before fusion training can be attempted. It may be either congenital or acquired, but we are concerned with the latter. In children who have squinted one eye since birth or shortly thereafter and who have received no treatment, we usually find a marked loss of vision in this deviating eye due to the continued suppression of its image. Because of the unreliability of visual acuity tests in small children all squinting eyes should be considered as amblyopic and an attempt made to improve the visual acuity before fusion training is commenced. For this purpose partial or constant occlusion of the fixing eye is carried out for a period of time depending upon the return of vision. A well fitting occlusive eye patch is applied snugly under the lens of the fixing eye for varying periods of time from two hours a day to constant wear during the waking hours. During the first week or two the child should be allowed to amuse himself as usual; then as fixation becomes easier, close work should be started. The value of patching depends almost entirely on the amount of near work the child performs. Tracing, drawing, coloring and cutting out of large pictures should be tried at first and as the vision improves smaller patterns may be substituted. Finally bead stringing, peg boards, etc., that require very close application are used. Improvement usually takes place almost immediately so far as the acuity is concerned; if it does not the chances of a cure are not good. Worth believes that if improvement has not taken place at the end of two months the case is hopeless. Many men prefer the use of atropine to fog the good eye in



place of the patch. It is to some extent a matter of personal opinion but we feel that the patch is indispensable in the beginning at least.

#### SUPPRESSION

The next obstacle and probably the most difficult to overcome in fusion training is suppression. Suppression is an involuntary inhibition of the visual impressions of the squinting eye. The suppressing eye may be a good eye monocularly but is useless when binocular vision is required. It is often spoken of as a "lazy" eye because it will not function until the other eye is partially or completely disabled. Suppression can readily be detected by placing two unlike cards in the stereoscope; for example the fish and the fish bowl. When the child views these cards through the eye pieces, if he is suppressing he will see only one of the pictures. This same test can be made with the amblyoscope and the bird and cage targets. While making these observations the examiner should watch the child's eyes closely to see that he is not alternating and producing a pseudobinocularism. Suppression will, to some extent, be overcome along with the amblyopia by patching but if it is not entirely eliminated fusion training will be of no avail. It is probably best treated with the stereoscope and a set of cards designed expressly for this purpose. The most useful charts are those that will place before the squinting eye a large, bright colored attractive target and before the fixing eye a small, drab or pale colored picture. Very successful cards of this series are the ones labeled, "Supp. A." They have the large bright red circle and the small green star for one set, and the large red ball and the small bird for the other. When these cards are placed in the stereoscope, the larger and more attractive target before the suppressing eye will tend to keep the child's attention focused on it, while the fixing eye is focused on the other. By tapping the card before the squinting eye with a bright colored pencil, by intensifying the light on it or by moving it back and forth rapidly several times, the vision in this suppressing eye will soon be stimulated so that both targets will be seen simultaneously. When the child is able to point to and describe accurately the various details of the two cards, and is not alternating, he has binocular simultaneous macular perception and we have overcome the greatest obstacle to fusion. This same exercise can be carried out in a similar manner on the amblyoscope. The child will of course not be able to point at the objects seen but the observer will be able to judge from the accuracy of his description whether or not he is seeing simultaneously. Most cases of suppression can be overcome easily if the visual acuity is not

too low and if the attention and cooperation can be maintained.

#### MACULAR PERCEPTION

It is very important to determine whether or not a child is using his true macula before going further with the exercises on the stereoscope or amblyoscope, for if a false macula is being used we do not want to develop it more by our training. It is possible by a relatively simple procedure to determine whether we have a true fixation or a false one. By covering one eye and having the child fix his sight on an ophthalmoscope light across the room, we can determine from the position of the corneal reflex whether a true or false macula exists. If the reflex is just slightly to the nasal side of the center of the cornea we have a true fixation and if it is in any other position we have a false one. Shifting of the head or the eyes also indicates that the latter condition exists.

#### FUSION

Fusion is a normal process through which two retinal images are combined into a single visual impression. Color fusion is the simplest and most rudimentary form and is the easiest elicited in young children. Two complementary colors such as blue and yellow are placed in the stereoscope and viewed by the child. By moving the cards, intensifying the light, etc., the colors are made to fuse and produce a single green or neutral color. After accomplishing fusion in this manner, smaller colored balls may be substituted. These not only make the color fusion more difficult but they also require form fusion which is the next step in training. Before going further with the fusion training a better understanding of the stereoscope will make it more simple and comprehensible. The lenses in the stereoscope are five diopter spheres, so decentered that an eight degree prism base out is secured at twenty centimeters. At a distance of twenty centimeters, if the eyes are emmetropic and orthoptic, the convergence is zero when the distance between the charts is nine and one-half centimeters. One millimeter separation or approximation increases the prism strength one-half diopter. The points to remember then in using this instrument are: moving the charts away from the observer and moving the charts toward each other increase the power of convergence; moving the charts toward the observer and moving the charts away from each other decrease the demand for convergence. Prisms are used base out and the cards approximated for adduction training. They are used base in and the cards separated for abduction training. Therefore with this instrument we are able to measure and train fusion amplitude.

Form fusion can be elicited and trained on either the amblyoscope or the stereoscope; the former is probably easier to use and is consequently tried first.

Worth says that the education of the fusion sense should be undertaken at the earliest possible age and that the amblyoscope can be successfully used at three and one-half years. Two unlike cards are placed in the slots of the instrument; for example, two such cards as the bird and the cage which require only simultaneous macular perception. The child should face the light and look through the two eye pieces. Even if the larger object is placed before the squinting eye the child will probably respond by saying that he only sees the bird. If such is the case the light should be diminished before the fixing eye, and the card before the squinting eye will then appear more distinct by comparison. Moving this card will also aid in fixing the attention on it. After a short while the child will usually suddenly say that he sees both pictures at the same time. Now if we move the arms of the amblyoscope back and forth the bird will appear to move in and out of the cage. By noting at what point on the scale the child sees the two cards as one, we can check the various attempts and see if fusion takes place at approximately the same angle each time or whether the child is just guessing. When we are certain that the child has simultaneous perception, the more difficult slides may be used, ones that require fusion of the images. The best cards of this type are those that have one-half of the picture on one card and the other half on the other card. At first the child will probably see these cards as two imperfect pictures but in a short time fusion will appear and one complete image will be seen. As soon as fusion is fairly easily performed, the arms of the amblyoscope should be moved while the child attempts to hold the fusion. With a little training it will be possible to move the arms through considerable amplitude without destroying the fusion of the image. This amplitude should be increased to its maximum before attempting stereopsis or third degree fusion. The cards used to produce perspective or sensations of depth are the ones that have the appearance of a tub. When the cards are placed in one position the sensation is that you are looking into the tub, and in the other that you are looking at the tub from without. Upon questions and suggestions to the child that there is a difference in the two pictures, he will finally notice that there is depth to the picture and will inform you so by his various answers to your questions.

Fusion can usually be elicited in five or six les-

sons and once it has been acquired it is likely never to be lost. It is this desire for fusion that directly brings about the cure of the squint. The stereoscope or telebinocular has several advantages over the amblyoscope, especially for use with older children. Fusion is a little more difficult to obtain with it at first but once fusion is present it is much more quickly and easily developed than with the amblyoscope. Various points in the technic are the same, but one is allowed a much greater variety of cards which aids materially in maintaining the interest and attention of the child. The telebinocular has the added advantage of allowing a much better view of the child's eyes during the exercises and permitting the use of supplementary prisms.

Assuming now that suppression has been eliminated and that simultaneous macular perception has been attained, we are now ready to develop flat fusion and fusion amplitude on the stereoscope. By using prisms base out before the fixing eye and the large half of the target before the squinting eye, the child will in a short period of time be able to fuse the cards so that one complete picture will be seen. Cards that lend themselves satisfactorily to these exercises are those marked duction and fusion. The strength of the prisms is gradually reduced until fusion is accomplished without their aid. After the child is able to fuse these unlike cards easily, a more difficult set is tried; these are the fusion B series and consist of pictures that are exactly the same on each card except that each has a different control spot on it. These control spots are merely small colored balls placed on the pictures to be used as a check to prove that the child is having true fusion and is not suppressing the image from one eye. Some amplitude can be developed by moving these cards farther apart and closer together and having the child still maintain fusion. Improvement can be noted from day to day by checking the distances the cards can be moved. A fairly good amplitude should be developed before attempting stereopsis as it will make the stereoscopic training much less difficult.

#### STEREOPSIS

Various types of cards are used to produce perspective and depth perception. Those marked "Stereo" have proved very satisfactory. Prisms base out are used at first before one or both eyes, and the strength is gradually reduced as stereopsis is developed. Each observer will have to work out his own method of teaching the child to see stereoscopically. By asking questions as to the relative nearness of the star and moon, by suggesting that one object may be nearer than an-



other, or by other interrogations and suggestions, stereopsis will finally be developed.

The use of the cheiroscope has not been mentioned in the routine treatment of squint because it is more or less an adjunct to the other exercises and may be used at any time after binocular vision has once been established. It is however a very valuable instrument in overcoming suppression, in stimulating binocular vision and in lessening the amount of amblyopia. The telebinocular itself makes a very satisfactory cheiroscope and it has all the attributes of the more cumbersome and expensive instrument. A large uncomplicated picture or pattern is placed in the stereoscope before the better eye and a pencil in the child's hand is placed before the squinting eye. The instrument makes the picture before the fixing eye appear to be in front of the other in the same field as the pencil. The child can then apparently trace on a piece of paper the exact likeness. If there is any suppression or lack of binocular single vision this exercise will be impossible. As the tracing improves in quality the pictures can be made more and more detailed. This is not only a very valuable exercise but also one of which most children do not tire quickly.

There is one other point which should be mentioned before concluding a paper on this subject, and that is the associated vertical imbalances. These vertical imbalances may persist even if alignment is perfect in the horizontal plane. Prism slip-overs which exactly correct these errors may be worn while the duction exercises are being given until such time as the duction power is great enough to overcome these vertical imbalances. The prism power should be decreased as the deviations improve and if there is some permanent vertical imbalance, prisms may be incorporated in the correcting lenses.

Home training is another important point in orthoptic work, but time does not permit of its discussion now.

#### CONCLUSIONS

It is of course not possible to set forth in one single paper all of the various procedures in orthoptic training. Many of the details and refinements of one observer's technic will not prove satisfactory to another. Only an outline of the various exercises has been attempted and it will be necessary for each man to work out his own procedure. Various investigators have proved that results can be attained by orthoptic training if the operator is willing to apply himself conscientiously to the treatment of these squinting youngsters. If they are seen early enough the amblyopia can be overcome, the visual acuity improved and the de-

viation eliminated. Failure is usually due to a poor attitude on the part of the parents, or failure of the child to cooperate. The essential phases of the training in the order of their importance are:

1. Overcoming of amblyopia.
2. Increasing the visual acuity.
3. Overcoming suppression.
4. Lessening or overcoming entirely the deviation.

In closing, this quotation of Peters may be very encouraging, "What has been accomplished by some ophthalmologists who have worked long in this field is within the reach of all."

#### Discussion

Dr. J. H. Allen, Iowa City: Dr. Russell and Dr. Gardner have given us a commendable discussion of an aspect of squint treatment that is often neglected. Economically speaking visual training is just as important to the patient as correction of the deviation; therefore, no squint should be considered adequately treated until vision has been developed as completely as possible. Orthoptic training, designated preferably by some as visual training, may reduce or eliminate the deviation as a result of improvement in vision. Recently 50 per cent of one series of cases were reported as "cured" by glasses and training. It was observed in this series that the children with small angles of squint responded to training better than those with large angles. This has been confirmed by other reports. Therefore in the interest of saving vision, it might be better to combine surgical correction and training as soon as possible in squints of high degree. Our experience apparently bears out this contention. Some of our cases have not responded to training preoperatively but have shown almost immediate improvement with further training after partial surgical correction of the deviation.

Accurate measurement of the angle of deviation is not essential, in practice, but an estimation of this angle is advantageous. A rapid, practical, but rough method has been worked out by Hirschberg. With average size pupils, and the patient fixing on a light at 33 centimeters, the position of the corneal reflex of the deviating eye is the criterion. If the corneal reflex is opposite the pupillary border the angle of squint is approximately 15 degrees; if the reflex appears to be halfway between the pupillary border and the limbus the angle is between 30 and 35 degrees; or if the reflex is at the limbus the angle is approximately 45 degrees. In this method the angles alpha, gamma, and kappa are not considered. These three angles represent different methods of measuring the angle between the line of fixation and the geometric axis of the globe, and as that angle is usually less than five degrees it is not important in the average case. However, when it becomes necessary to distinguish between a squint of low degree and a wide visual angle a simple cover test may be employed in lieu of actual measurement. This test is made by placing a card in front of one eye during fixation,

and observing the effect upon the covered eye. Motion of the covered eye indicates either heterophoria or squint, whereas lack of motion indicates a wide angle alpha, gamma, or kappa. For more accurate study of these angles the Priestly-Smith tape is probably the simplest and most practical instrument.

Studies of the visual fields of squint patients show that loss of vision in the squinting eye is due to a relative scotoma in the central portion of the field with a tendency to involve more of the temporal than the nasal field; therefore sometimes producing a central scotomal defect. The periphery of the field is usually normal. The fact that the scotoma is relative has been used by some men to distinguish amblyopia ex anopsia from congenital amblyopia in which they say the scotoma is absolute.

False macula, although rare, is an interesting phenomenon. The term actually is a misnomer since a macula is not developed in an unusual position in these cases. The anatomic macula is present in the normal location, but does not function because of suppression and amblyopia. False macula simply implies that the patient, who invariably has had squint for a long time, has through experience become adjusted to the situation, and automatically allows for the false position of his eye in projecting. Vision is seldom better than 3/60 which is normal visual acuity of that portion of the periphery of the retina. Training of this region of the fundus might result in establishing the false projection more firmly but would not increase the visual acuity. As these patients have wide angles of squint, it is probably better to correct the deviation by surgery and then start visual training as soon as possible after the operation.

Training of fusion and stereopsis, as has been pointed out, frequently presents tedious and difficult problems. The ingenuity of the supervisor of training is an important factor in meeting the individual needs of the patient and in maintaining interest. Substituting the words play for work, and games for exercises may entirely reverse a child's attitude toward the training. The use of brightly colored targets adds interest for the child, but in our experience color education has been necessary in children under school age. Perhaps this difference is due to the lower social status of the majority of our patients.

In our experience best results are obtained in monocular convergent squint. Patients with true alternating squints seldom need training to increase visual acuity after glasses have been given, and they do not respond to fusion training. Divergent squints are rare in younger children. The deviation and loss of vision is generally the result of easily recognizable pathology. In older children divergent squint is associated with myopia; their vision is corrected by glasses but they do not usually respond to fusion training. True vertical deviations are not likely to respond to fusion training. Cases of combined lateral and vertical deviations generally respond well to training after correction of the vertical element either by prisms or surgery.

Reference has been made occasionally to the use of orthoptic training in phorias. Our experience in

this respect has been limited almost entirely to convergence insufficiency. Apparently rather rapid and permanent relief of symptoms occurs in the majority of these cases.

In closing it must be emphasized that improvement of the visual acuity in both eyes of the squint should be considered equally as important as the proper alignment of the optic axes. Glasses and visual training may improve the vision and straighten the eyes in some cases, but in others partial or complete correction of the deviation by surgery may be of assistance in improving the vision. Therefore surgery should not be delayed in those cases which do not respond to visual training, and neither should visual training be discontinued after surgery, without a sufficient trial. Parental objection to any of these procedures can be met by pointing out the fact that delay may result in loss of vision in the squinting eye, which for practical purposes may amount to blindness.

## DEVELOPMENTAL ANOMALY OF THE MALE GENITALIA\*

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### CASE REPORT

An unusual developmental anomaly of the male genitalia, involving, as it does, a divided scrotum from the midportion of which arises a rudimentary penis, simulating a clitoris, was found recently in the routine examination of all university students.

Case Number 12191, a white male seventeen years of age, was found to be of normal development (see Figure 1) except for the arrangement of the external genitalia. These arose from the normal pubic area but consisted of a scrotum of nearly normal size, divided in the mid line, from which site arose a small rudimentary penis, measuring approximately one inch in length (Figure 2). In the center of the tip of the penis was a normal meatus. No true foreskin was demonstrable, but with the patient upright two definite folds of tissue presented themselves on each side of the penis to form what had the general appearance of labia majora and labia minora with an hypertrophied clitoris just visible between. With the patient standing the apparent labia minora was formed by loose scrotal tissue while the labia majora was represented by the separated testicles. Both testicles seemed normally developed although the left was the larger. The consistency of the testicle's tissue seemed normal. No abnormalities were found on rectal examination.

The patient reported that he had been told he was born with this congenital deformity. He

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had never experienced any difficulty, had always passed urine normally through the meatus, and since the onset of adolescence had had normal sexual desires and erections. With erection there was very little increase in the size of the penis. There had never been any sexual intercourse, nor had the patient experienced nocturnal emissions. Unfortunately it has been impossible to secure a specimen of semen for microscopic examination. The changes in the youth incident to puberty began at about thirteen years. At the time of

after birth. Three others are normal and alive. No positive statements are available concerning the period of gestation or the birth of the patient. At present there is nothing to suggest disease in the patient. He has never been seriously ill and his only operation has been a tonsillectomy. His progressive physical development has been normal, and from a mental standpoint he is unusually brilliant.

A review of the recent literature reveals few instances of malformations of the external geni-



Fig. 1.

examination the voice was of normal, moderately low quality, and the hair of the pubes and axillae abundant. He had to shave about three times each week. The configuration of the body was that of a normal male. The breasts were of the male type and the individual was moderately muscular. The patient could make no positive statement concerning any marked change in the size of the rudimentary penis at the time of puberty.

The youth was an only child and his mother had had no other pregnancies. His mother had never been rugged but there had been no serious illnesses and no operations except upon the sinuses. The father was entirely well. The maternal family history was negative except that an uncle of the patient had been confined to a mental institution following an automobile accident in which an injury to the skull had been suffered. The father's mother had two children who died soon



Fig. 2.

talia in the male. The majority are cases of true absence of the penis while the principal varieties of the imperfect or deformed penis are those of hermaphroditism and hypospadias or epispadias.

#### SUMMARY

The congenital deformity of the genitalia of an otherwise normal adult male has been described.

#### DEMONSTRATING THE CALCIFIED VALVE LEAFLETS BY X-RAY IN A PATIENT WITH AORTIC STENOSIS\*†

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Since heart disease has become the leading cause of death, every physician who offers guidance to cardiac patients should attempt to make an exact diagnosis of the lesion involving the heart. A visual picture of the anatomic lesion will aid in the clinical interpretation of the signs and symptoms presented by the patient, as well as enable the physician to make a fairly accurate prognosis of the progressive and final consequences of the disorder.

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†From the Department of Medicine, University of Nebraska College of Medicine.

The deposition of calcareous material on the leaflets of the heart valves was first demonstrated roentgenographically by Christian<sup>1</sup> and <sup>2</sup> in 1931. He reported the first case in which calcification of valve leaflets could be visualized by x-ray in the living subject. Recently, Sosman and Wosika<sup>3</sup> have reported twelve cases of aortic stenosis, in eleven of which the calcification of the leaflets was admirably demonstrated by roentgenographic films. Fusion or stiffening of the aortic valve leaflets probably occurs more frequently than was form-

ative valvulitis with formation of either small verrucae or large polypoid thrombotic infected masses on the surface of the valves is the outstanding feature of the lesion. The masses are composed of fibrin and platelets with infiltration of monocytes and are uncovered by endothelium. Fibrous thickening, dense scarring and sometimes calcification succeed each other as the lesion progresses.

The senile or degenerative stenosis of the aortic valve has a rather obscure etiology. This type is common in old age and probably bears some relation to arteriosclerosis. The cusps are sclerosed, rigid, glued together and often calcified. The valve may be drawn into the aorta in a funnel shape, the opening of which is reduced to a mere slit.

Congenital malformations of the aortic valve leaflets in which there are either two or four cusps, are not so very infrequent. Osler, and later Lewis, have shown that bacterial endocarditis is particularly liable to attack an aortic valve which has only two leaflets, and fusion with ultimate calcification and stenosis is a sequel.

The clinical diagnosis of aortic stenosis is sometimes made when the lesion is not actually present, but more often the lesion, when present, is unrecognized or is called aortic insufficiency. Aortic

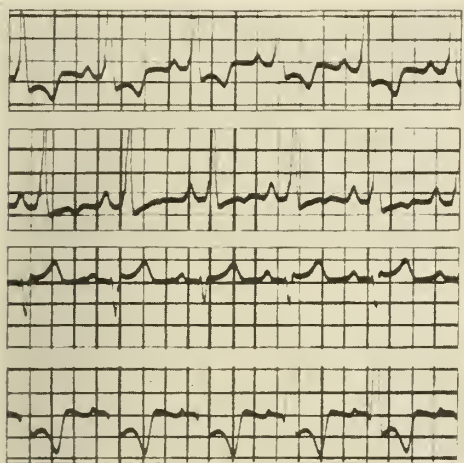


Fig. 1. Electrocardiograph.

erly believed. White and his co-workers<sup>4</sup> in a recent review of the autopsy records at the Massachusetts General Hospital, found that aortic stenosis occurred 113 times out of 4,800 cases of cardiovascular disease, an incidence of 2.3 per cent.

The etiologic factors most commonly responsible for producing a stenosed aortic valve are: acute rheumatic fever; subacute or acute bacterial endocarditis; sclerosis; and congenital malformation of the valve.

The earliest lesion of acute rheumatic fever is valvulitis characterized by numerous small glistening dots which may be easily wiped off the endocardium of the valve leaflets. Proliferation of the adjacent endocardium and subendothelium with an infiltration of leukocytes then occurs. The rheumatic lesion is characterized by the remarkable degree of fibrosis with scarring, stiffening, calcification and adhesions of the valve leaflets, resulting in stenosis and insufficiency of the affected valve.

Acute and subacute bacterial endocarditis usually attacks a valve that is thickened and fibrosed from an antecedent infection. The most common form of bacterial endocarditis is that produced by streptococcus viridans. The prolifer-



Fig. 2. Plate showing calcified aortic ring.

stenosis occurs more often in males than in females. The highest incidence is found in the sixth decade of life. A definite history of acute rheu-



matic fever can be obtained from more than one-half of the patients. A well marked systolic thrill felt over the base of the heart, transmitted to the great vessels of the neck and accompanied by a loud, harsh systolic murmur heard best in the second or third interspace to the right of the sternum, are, in themselves, highly suggestive of stenosis of the aortic valve. These findings are particularly significant if syphilitic aortitis and hypertension can be excluded. At times a soft blowing early diastolic murmur can be heard in the third interspace just to the left of the sternum. The so-called "plateau" pulse or anacrotic pulse may or may not be present. However, the triad of thrill, murmur and a small pulse are the usual findings in a well developed aortic stenosis. The blood pressure tends to be slightly above normal, with a low pulse pressure. Because of the low pulse pressure, giddiness and attacks of syncope are at times encountered.

Patients with aortic stenosis often have the anginal syndrome due to the narrowing of the coronary orifices. Severe vise-like pain beneath the sternum or in the epigastrium, radiating into the neck or either arm, is the characteristic complaint. The pain occurs after exertion but is indistinguishable from true angina pectoris because the mechanism of its production is the same. The electrocardiographic findings are significant but not diagnostic. A shift in the S-T segments in lead I, or inverted T-waves in lead I, or a combination of both are the common findings with a well marked left axis deviation.

#### CASE REPORT

An Italian laborer, thirty-nine years of age, came to the dispensary of the University of Nebraska Hospital January 8, 1934, complaining of attacks of substernal pain following exercise, overeating, or excitement. The attacks had increased in severity and frequency during the last two years to the point where he was unable to work. The pain began at the lower end of his sternum, radiating upward to his right shoulder and down the right arm to the elbow, and was accompanied by severe dyspnea and a sense of suffocation. Dizziness and syncope had been occasionally associated with the attacks. The patient also complained of recently occurring attacks of epistaxis and hemoptysis.

There was a history of acute rheumatic fever at eighteen years of age which involved the joints of his upper and lower extremities for ten days. At twenty years of age, following a physical examination, he was refused for work. Since that time he had been refused for life insurance on numer-

ous occasions. His work had always been hard manual labor but he was never aware of having heart trouble until the onset of his present illness two years before admission.

When first seen by us the patient appeared well nourished and ruddy-faced. The apical impulse of his heart was in the sixth intercostal space, twelve and one-half centimeters to the left of the mid-sternal line. This corresponded with the left border of cardiac dullness. There was an easily palpable systolic thrill just to the right of the sternum in the second interspace. The heart sounds were regular at a rate of 80 per minute. There was a loud, harsh systolic murmur heard over the entire precordium and transmitted to the vessels of the neck, but heard loudest at the third and fourth interspaces to the left of the sternum. There was also a soft diastolic murmur heard at Erb's point and at the aortic area. The pulse was of small volume and anacrotic in character. The blood pressure was 105/90, the same in both arms. There was no peripheral or dependent edema.

The electrocardiographic tracing (Fig. 1) showed a normal sinus rhythm, left axis deviation, elevated S-T segments in lead III and a marked depression of the S-T segments in leads I, II, and IV, and a cove-shaped T-wave in lead I. Under the fluoroscopic screen we were able to see a pulsating ring of calcification which corresponded in position to the aortic ring. This same ring of calcification was visualized (Fig. 2) on the roentgenographic film. In spite of continued rest and theophylline, his condition became progressively worse. He had frequent attacks of substernal pain with shortness of breath and in October, 1934, he had a severe attack of hemoptysis. There were no demonstrable changes in his electrocardiographic tracings or his physical heart findings. His complexion, became more and more sallow, his cheeks sunken, and his facial expression more anxious. On August 12, 1935, he died suddenly while working in his garden.

The case presented here was of considerable interest because it afforded an unusually good opportunity to visualize the calcareous aortic ring during the life of the patient. The clinical course of the patient, including the sudden death, is characteristic of aortic stenosis. Marvin and Sullivan<sup>1</sup> in discussing the relationship of sudden death to aortic stenosis, suggest that a hyperactive carotid sinus reflex associated with the narrowed aortic orifice is the probable cause of the sudden death of patients with aortic stenosis.

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## THE FINLEY HOSPITAL CLINICO-PATHOLOGIC CONFERENCE

### CROSS-EYE—THE FAMILY PHYSICIAN'S PART IN EARLY DIAGNOSIS AND MANAGEMENT

J. A. THORSON, M.D., Dubuque

In view of the very good results obtained in the intensive treatment of squint, a great impetus has recently developed in this particular branch of therapy. Orthoptic clinics for the treatment of squinters (to develop binocular vision and fusion) have been organized in practically every large city of the land. The importance of early treatment is being re-stressed to the school teacher, the nurse, and the parents, but particularly to the family doctor who controls the power to influence the parent and who in the past has too often dismissed the problem with an inference that the "child will out-grow it." This erroneous idea may have originated in the observation of physiologic ocular deviations in an infant during the first year of life, which abnormality is fleeting and soon disappears.

The purpose of this report is to reaffirm the importance of the general physician in this work and to outline primarily for him the characteristic differences between physiologic deviations and true squint, the known etiologic factors, the results of squint, and the treatment.

#### PHYSIOLOGIC DEVIATIONS VERSUS SQUINT

The great Donders noticed that infants in the first year of life often show momentary deviation of either eye or both (he called this period "the potential strabismus period"). The direction of deviation is seldom the same; it has no tendency toward a definite pattern and the child soon develops (within the first or early part of the second year of life) normal binocular vision with good fusion and eyes parallel. The onset of true squint, however, is usually after the first eighteen months. At first there is momentary, usually inward, deviation of one eye; later the turning is for longer periods and more frequent. It gradually develops into a definite pattern and becomes constant.

Sometimes it does not become a fixed squint until the child is near the age of five years, when he becomes interested in close work.

#### KNOWN ETIOLOGIC FACTORS

Hypermetropia probably ranks first in the predisposing causes of cross-eye. Its association with many cases of squint was first described by Donders in 1864. It predisposes to convergent squint by disturbing the accommodation-convergence relation. The same nervous impulse actuates accommodation and convergence. When an emmetropic (normal) eye looks at an object beyond six meters there is no thickening of the lens (accommodation), the lens is at rest (Fig. 1). Con-

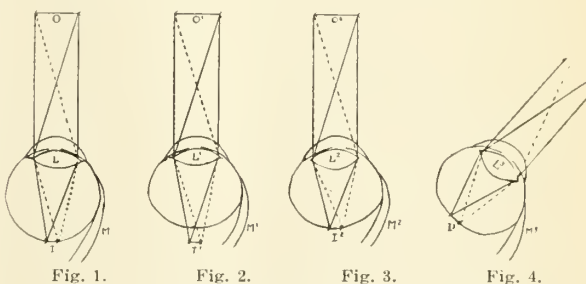


Figure 1 shows the emmetropic (normal) eye viewing an object (O) beyond six meter distance; the image (I) is focused on the retina while the lens (L) is at rest. The internal rectus muscle (M) is also at rest.

Figure 2 shows an eye that is five diopters hyperopic (short); its gaze is directed toward a similar object (O'). The lens (L') is at rest and the image (I') is focused behind the retina.

Figure 3 shows the same hyperopic eye as in Figure 2 with its lens (L'') accommodated five diopters (thickened in its anteroposterior diameter) while viewing the distant object (O'). The image (I'') is now clearly focused on the retina.

Figure 4 shows the impossible position at five units of convergence, which the hyperopic eye tends to assume when viewing the distant object. The contraction of the internal rectus muscle (M'') is graphically shown.

sequently, there is no impulse of convergence, the internal rectus muscle is also at rest (Fig. 1). When the same eye looks at an object one-third of a meter (thirteen inches) distant, it accommodates three diopters and the eye converges three meter angles. If a hypermetropic (farsighted, short) eye views a distant object with its lens relaxed the picture will be blurred because the image falls behind the retina (Fig. 2). In order to obtain a properly clear picture, the lens must thicken in its anteroposterior diameter by the number of units of farsight, say for example, five diopters (Fig. 3). At the same time a nervous impulse of coordinate intensity will be sent to the internal rectus muscle. It will tend to contract so that convergence of five meter angles will result (Fig. 4). When this eye is viewing distant objects clearly its internal rectus muscle is pulling inward as if it were viewing an object at a distance of twenty centimeters (eight inches). In order to overcome the overwhelming strain of



counteracting this convergence, one eye shoots inward while the other remains straight forward in the line of gaze (see Case 1, Fig. 9). To avoid confusion the visual impulses from the out-of-line eye are suppressed by the mind.

Another contributing factor of squint is a muscular defect particularly evident in cases where the deviation is up or down. Still another is a fusion defect wherein the desire to see with both eyes simultaneously is not sufficiently strong. Defective fusion is emphasized in cases of alternating convergent strabismus where the vision is normal in either eye and there is little or no refractive error. Where the two eyes have a markedly different refractive error we encounter aniseikonia (unequal retinal images). It is impossible to fuse these dissimilar retinal impressions; one of them must be suppressed. To facilitate the suppression the one eye turns inward so that the image falls on a less sensitive area of the retina. Heredity as a contributing influence is striking in families where there are three and four children with similar squints. Some children are able to counteract these predisposing factors until an acute illness breaks down their reserve strength and they suddenly develop a definite strabismus.

#### RESULTS OF SQUINT

The social disadvantages of squint are most pathetic and far reaching. At school the squinting child suffers from his fellows' youthful dislike of the abnormal. He is called "cock-eyed" and is ostracized by his playmates; many exercise a crude sense of humor at his expense. His life, which should be full of laughter and carefree pleasure, becomes a succession of misery and pain. He retracts from his environment, becomes asocial; a great deal of harm is done to his young and plastic mind. He develops what is termed an "inferiority complex". It is a handicap throughout life; it cannot be cured, but it could easily have been prevented. When he becomes an adult, he is unable to hold a position of responsibility.

Amblyopia (depression of vision) in the squinting eye develops rapidly in a child; when it has progressed for a year or longer, or when the vision is less than 20/70 there is little hope for cure. It is a functional defect closely allied to suppression; but suppression may be most unyielding in an alternating squint where the vision of either eye is normal. The development of amblyopia or suppression prevents binocular vision and fusion. The child does not acquire stereoscopic vision or depth perception; he is unable to gauge his marble shots or his swings at a baseball. Later

in life, when driving a car, he becomes an additional risk to himself and his fellows; he lacks the accurate judgment of space and distance most essential to safe motoring. The deviation of his amblyopic eye, which at first was periodic and inconstant, becomes permanent. In the abnormal position, hypertrophy and contracture of the internal rectus muscle gradually occur (Case 3, Fig. 11); and the opposing external rectus muscle becomes relaxed and atrophic.

#### TREATMENT

The proper treatment of squint is the early treatment; that directed toward the prevention of its disastrous and disabling effects. As long ago as 1903 Worth stated that unless binocular vision is established by the seventh year, it is rarely established at all. The responsibility in a large percentage of cases rests upon the family physician. He sees the youngster when the periodic stage is present, before any of the disabling evils are permanently acquired. He must literally command the parents to seek immediate treatment. If not impressed or if left to their own volition they will procrastinate until a cure is extremely difficult or impossible. It is at this early stage that the non-surgical methods, correction of refractive errors, fusion training, and atropinization or occlusion of the fixing eye, will yield prompt and lasting single binocular vision with depth perception.

1. Correction of refractive error is very often sufficient treatment as illustrated in Case 1, Fig. 9. Retinoscopy is always done under a cycloplegic (atropine) so that in these youngsters an exact correction can be given from this measurement. At this time the fundus is always examined; for, if a lesion of the macula is found, further non-surgical treatment will be useless. If the inward turning of the eye persists after glasses have been worn for a month, the child's fusion sense, the desire to see simultaneously with both eyes, is undoubtedly below par.

2. Orthoptic training is then given without delay. This is done, in the ordinary case, with a



Fig. 5.

Fig. 6.

Fig. 7.

Figures 5, 6 and 7 represent the three grade test (Worth) of binocular vision as described in the text. When the left and the right pictures, in Figure 7, are fused, depth or perspective is appreciated.

simple stereoscope, beginning with split cards in a series of three grades (Worth). The first grade comprises the simultaneous macular perception of

dissimilar objects, such as a bird with one eye, and a cage with the other. These are first seen apart and are then superimposed to form a single picture of a bird in a cage (Fig. 5). The second grade consists in making a whole picture by putting the two parts of an object, such as a man, together. Each eye sees one-half and the mind fuses them into a whole (Fig. 6). The third grade consists in fusing the two similar parts of a stereoscopic picture and perceiving depth therein (Fig. 7). When this is mastered, fusion may be further strengthened by gradually moving the two parts of the stereoscopic view further apart. The patient's eyes must diverge to maintain the fused picture. The amplitude gradually increases. If there is an insufficient converging ability it can similarly be improved by moving the picture parts together. If amblyopia already exists in one eye it will often be impossible to get results with glasses and fusion training. In developing binocular vision it is more important for the visual acuity to be approximately the same in the two eyes than for it to be normal in either eye.<sup>1</sup> When the difference amounts to more than the ratio of 20/20 to 20/70 the two eyes cannot be used together and the image of the poorer eye is suppressed.

3. Atropinization or occlusion of the fixing eye is then the treatment. Case 2, Fig. 10, illustrates the effectiveness of this therapy, providing the amblyopia has not persisted, as a rule, longer than six months. After the visual ratio of 20/20 to 20/50 or better has been gained, good results are obtained with orthoptic training. In a series of fifty-four cases treated non-surgically by use of glasses, atropinization or monocular occlusion, and orthoptic training, as compared with a control series of fifty-three cases given the same treatment without orthoptic training, Guibor<sup>2</sup> found that with the fusion training 57.4 per cent were cured of squint (without glasses) while in the control series only nine per cent were cured. Fifty per cent of the trained group developed binocular fusion and depth perception as compared with 7.5 per cent in the control group. These results are exceptional, probably due to persistent and methodical management; yet with the widespread establishment of orthoptic therapy it is generally agreed that much better results can now be obtained. With proper guidance much of the training can be done at home. In many cases conditions prevent the patient from traveling far distances to the oculist even once a week. The supervision of treatment must therefore be shifted to the family doctor. The oculist shows him, in a few moments, sufficient details of the technic

to enable him to direct the home treatment. This arrangement is especially urgent in postoperative cases in which the straightened eye will gradually assume its original deviated position, unless central vision is immediately acquired and improved.

If after three months of non-surgical treatment, particularly in cases with deviation of more than fifteen degrees, there is little or no improvement in binocular vision and in the deviation, operative correction should be done. The placing of the eyes in approximate parallelism is of great value in the development of fusion. In a series of thirty-seven cases, Berens<sup>3</sup> found an increase of forty per cent in the number of patients who fused after operation as compared with the number who fused before operation. With the present methods of diagnosis the operation can be accurately directed toward the offending muscle; the type of operation can be determined by whether it is a muscular overaction or an insufficiency; and the desired amount of shortening or lengthening can be definitely estimated. Davis<sup>4</sup> states it is his firm belief, based upon approximately 300 operative cases, that almost one hundred per cent can be cured in the preschool age. The fear shown by some toward operation is an

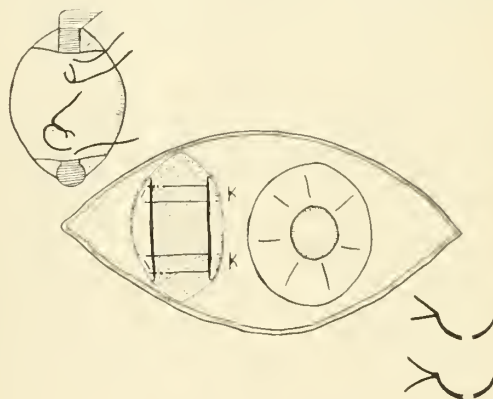


Fig. 8.

Figure 8. The internal rectus tendon has been severed and sutured at a measured distance back from its stump, according to the Wilkinson technic. The smaller figure above shows the sutures inserted over a muscle hook before the muscle is severed. The lower needle demonstrates the safe method of passing through the episclera; the needle must be visible on passing, otherwise it is too deep and may pierce the sclera.

obsolete relic of the reaction against the uncontrolled tenotomies of a generation ago. Today the internus tendon is recessed a measured amount and safely anchored to the episclera (Fig. 8).

Even if an intense and lasting amblyopia, or an unyielding suppression, (as illustrated respectively in Cases 3 and 4, Figs. 11 and 12) is present, surgical correction of the deformity must be urged. When their eyes are straightened early these little patients lose their supersensitive natures



and their morbid tendencies. Their environment changes from continued sadness to the normal pleasure of childhood and youth, and a great and lasting handicap of adult life is averted.

CASE REPORTS

Case 1, Figure 9: The patient, a girl three years of age, was first seen June 15, 1934. She was a normally delivered baby, and her first illness was grippe when she was nine months of age. Thereafter she developed a periodic turning in-



Case 1, Fig. 9. Before treatment. After treatment.

ward of the left eye, which became more and more frequent. Examination showed the eyes parallel for distance, but when observing objects at thirty centimeters, (one foot) the left eye turned in thirty degrees and up seven degrees. The family history was negative. Retinoscopy under a cycloplegic revealed a high degree of hyperopia. The squint immediately disappeared when she began to wear a full correction, and she now has stereoscopic vision.

Case 2, Figure 10: The patient, a girl four years of age, was brought to the office February 10, 1934. The parents first noticed an occasional turning in of the left eye when the patient was fourteen months of age. It became progressively more frequent, with constant convergence six months before she was brought to the office. Family and birth histories were both negative. The patient had had pneumonia and rickets when she was five months of age. She fixed with the right eye, while the left turned in twenty degrees and up eight degrees. The motility of the eyes was very good. Retinoscopy, under atropine, revealed a moderately high hyperopia. After wearing a full correction for one month there was no change in her squint. The right eye was

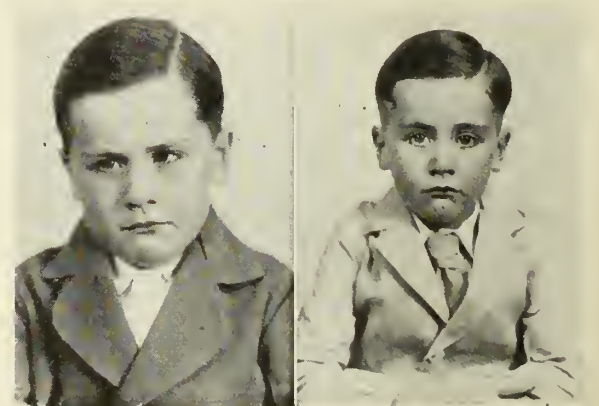
atropinized for one week and then her right eye was covered. She stumbled considerably at first, but the vision in the left eye improved markedly. It became the fixing eye in six weeks. After three months of orthoptic treatment with the Worth amblyscope her vision was grade 2 (Worth), but her left eye turned in twenty degrees when she



Case 2, Fig. 10. Before operation. After operation.

viewed objects at thirty centimeters. A four millimeter recession of her left internal rectus muscle (Fig. 8) on July 6, 1934, relieved this overactivity of convergence. Now at six years of age, she has stereoscopic vision, and her eyes are straight when viewing near as well as distant objects.

Case 3, Figure 11: The patient, a boy five years of age, was first seen on April 13, 1934. His left eye had turned in since he was one and one-half years of age. The vision in the right eye was 20/20; with the left eye he could only count fingers



Case 3, Fig. 11. Before operation. After operation.

at four feet. A sister, seven years of age, was similarly affected, and both children had a high degree of hyperopia. In July, 1934, a large and contracted left internal rectus muscle was recessed

five millimeters, and a resection of seven millimeters was performed on the thin left external rectus. He and his parents have cooperated faithfully for two years in occluding the fixing eye constantly, except when he was doing his school work. At present he has 20/150 vision in the left eye, and consequently no simultaneous binocular perception. He is free from the stigma of deformity.

Case 4, Figure 12: The patient, a girl fourteen years of age, was first examined on October 19, 1931. She had an alternating squint and a moderately high degree of hyperopia for which she had been wearing glasses since she was six years of age. Her mother had been operated upon for squint, and one brother was similarly affected. Either eye turned in forty degrees; and



Case 4, Fig. 12.  
Before operation. After operation.

the left one turned up ten degrees when she was fixing with the right eye. A bilateral five millimeter recession was performed on her internal recti muscles, and later a six millimeter resection on the left external rectus muscle. She cooperated poorly in the subsequent orthoptic training because she saw no advantage in it after the deformity had disappeared. At present she has only first degree binocular vision. She has a left hyperphoria of seven prism diopters, but her eyes appear straight and she is interested for the first time in her personal appearance.

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### CLINICAL NOTES FROM THE COLLEGE OF MEDICINE

#### DEEP INFECTIONS OF THE HAND

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From the Department of Surgery

Synovial and fascial space infections of the hand, because of their frequency and severity, are of greatest importance. They occur more frequently in males than in females, probably because the hand of the male is subjected to rougher usage and greater chance of contamination. A minor injury to which no attention is given until a full-blown infectious process is under way, is usually the most common type of trauma involved as the etiologic factor. Because extensions of infection of the various compartments tend to follow definite anatomic routes, it is necessary to review briefly the anatomy of the hand.

The synovial sheaths of the palmar aspect of the hand are five in number. The sheaths of the index, middle and ring fingers begin just distal to the distal interphalangeal articulations, end about one centimeter proximal to the metacarpophalangeal articulations, and come into close relation to the bone in the region of the proximal interphalangeal articulation. The sheath of the thumb flexors is nearly always continuous with the radial bursa, which is an enlargement of the sheath at the wrist, overlying the thenar space, and extending beneath and just proximal to the annular ligament. The sheath of the little finger flexor is continuous in about fifty per cent of cases with the ulnar bursa which extends upward. It partially surrounds the third, fourth and fifth finger flexors, sometimes only the fourth and fifth, and comes into intimate relation with the radial bursa, often communicating with it, extending upward upon the pronator quadratus, beneath and proximal to the annular ligament, the same distance as the radial bursa. The middle palmar space lies beneath the flexor tendons and lumbricales muscles, extending transversely from the middle metacarpal to the radial side of the fifth metacarpal. Proximally, it begins beneath the anterior portion of the annular ligament extending distally, sending projections along the lumbricales of the fourth and fifth fingers in the web region. It is partially overlapped on the ulnar side by the ulnar bursa. On the radial side it is separated from the thenar space by a fascial septum. Posteriorly lie the bones, interosseous membranes and muscles. The thenar space roughly corresponds to the midpalmar, lying



upon the radial aspect, anteriorly to the adductor pollicis muscle, and distally sends a prolongation down the lumbricalis muscle of the index finger. The lumbrical canals consist of the lumbricales muscles and the loose tissue about them. These muscles arise from the flexor tendons and insert into the phalanges. The canals lie to the side of the synovial sheaths and are parallel with them. In the fingers and palm of the hand, the skin lymphatics, in general, pursue the shortest course to the dorsum, while the deep lymphatics tend to follow the major vessels.

The onset of the infections is usually abrupt with marked pain and tenderness localized over the involved space. The tendon sheath infections show circumscribed swelling of the finger, the dorsal swelling due to the lymphedema. The finger is partially flexed, extension is very painful and there is tenderness over the course of the theca. The infections of the index, middle and ring fingers extend distally to cause an infection of the distal phalanx, or rupturing into the palm, cause an abscess formation in the thenar or midpalmar space. Drainage of the theca is done on the lateral aspects of the finger avoiding vessels and nerves, resultant herniation of the tendons, and scar formation on the volar surface.

With an infection of the palmar thenar space the thumb is forced away from the hand. The web between the thumb and index finger is swollen and the thenar eminence is more prominent. Tenderness is present over the compartment and extension may occur along the lumbrical canal, especially on the radial side of the index finger, and to the midpalmar space, possibly to the radial bursa. Drainage is done through the thumb web, forceps are passed upward and toward the ulnar side, roughly bisecting the angle between the thumb and index finger, to the space lying upon the thumb adductors.

A midpalmar space infection shows a loss of palmar concavity and the dorsum of the hand is markedly edematous. Due to the depth of the pus and the non-distensibility of the palmar fascia, the swelling of the palm is not pronounced although tenderness and inflammatory signs are present over the bursa. In neglected cases extension may occur to the palmar thenar space, the ulnar bursa, or via the web to the dorsum of the hand. Drainage is effected through an incision in the web between the middle and ring fingers extending upward to the distal transverse crease, and a hemostat is carefully passed between the tendons and metacarpals proximally, opening into the space.

The ulnar and radial bursae communicate at the wrist in the vast majority of cases and when

they are separated it is only by a thin fascial layer. Dean Lewis states that after forty-eight hours' duration, an infection of either bursa should be assumed to have extended to the other bursa. Infections may also pass into the palmar spaces, the radial bursae being in relation to the palmar thenar and the ulnar to the middle palmar spaces. If neglected they pass into the forearm, or the carpus may become involved with a resultant osteomyelitis. The wrist is swollen and inflamed with the annular ligament tense. There is tenderness and other inflammatory signs of the involved bursa and theca of the thumb or little finger.

When the radial bursa is involved and ulnar involvement is questionable, Kanavel states the point of maximum tenderness corresponds to the point of intersection of the distal flexor crease of the palm and the flexor sheath of the little finger. In neglected cases there may be some anesthesia due to compression by exudate of the median and ulnar nerves.

Incisions for drainage of the ulnar bursa are made over the flexor tendon of the little finger extending to the annular ligament. Collections of pus at the base of the sheaths above the annular ligament are approached by a lateral incision on the ulnar aspect of the wrist, beginning about one inch above the tip of the ulnar and extending upward. A hemostat is inserted across the flexor surface of the bone into the space beneath the flexor tendons.

An involved radial bursa can be felt bulging by inserting a finger in the ulnar wound and passing it beneath the flexor tendons. Kanavel recommends that a hemostat be passed through to the skin of the opposite side, then incising from this point, obviating possible radial artery damage.

To drain the flexor sheath of the thumb an incision is started over the flexor tendon at the proximal phalanx of the thumb. It is then enlarged along the base of the thenar eminence not nearer than a thumb's breadth to the lower border of the annular ligament. Just above this point a branch of the median nerve supplying two and one-half thumb muscles, including the flexor pollicis longus, passes.

Gauze treated with vaseline, Penrose drain or gutta percha strips are used as drains for twenty-four to forty-eight hours, hot wet dressings are applied for a few days and the hand is splinted to a board. Early motion with physiotherapy in a hot water bath is recommended. These drainages are done under general anesthesia with a constrictor bandage applied if possible.

The cases studied from our own hospital records since 1924 consist of twenty-seven patients

with acute infections of the synovial and fascial spaces of the hand. The ages of the group varied from fourteen to sixty-three years, with an average age of 36.4 years. The youngest patient, a young lad, received a gopher bite, while the sixty-three year old male opened a blood blister upon his finger. Distribution according to sex showed nineteen (70 per cent) infections occurred in males and eight (30 per cent) in females. In sixteen (59 per cent) of the cases the right hand was involved, while eleven (41 per cent) were of the left hand.

Four patients gave no history of trauma; one of them, however, had a specific infection, gonorrheal organisms being recovered from the involved tendon sheath. Ten patients gave histories of insignificant traumatism such as scratches, pin pricks, wood splinters and opening blisters. Of the remaining patients suffering more severe trauma, cuts were responsible in nine cases; a bullet wound, a fractured phalanx, a gopher bite, and a burn, in the others. The incubation period from the time of injury to the onset of the first symptoms of infection varied from a few hours in the case of a thumb cut while paring potatoes, to fourteen days after a simple fracture of a phalanx, with an average period of 4.1 days. Fourteen of those cases showed symptoms within forty-eight hours, while only six cases showed an incubation period of over four days. The duration of the infection prior to hospital admission varied from one to twenty-nine days, the average being 7.1 days. Twelve (45 per cent) of these patients had been drained surgically prior to hospital admission; eight (29 per cent) had been applying wet dressings, and seven (26 per cent) had no treatment whatsoever.

#### DIAGNOSES

Acute infection of theca of fingers	7 patients
Acute infection of ulnar bursa	5 patients
Acute infection of ulnar and radial bursae	6 patients
Acute infection of ulnar and midpalmar space	1 patient
Acute infection of ulnar and radial, midpalmar and thenar space	3 patients
Acute infection of radial and palmar thenar	1 patient
Acute infection of palmar thenar	1 patient
Acute infection of middle finger and midpalmar	1 patient
Acute infection of palmar thenar and midpalmar	1 patient
Acute infection of index finger and palmar thenar	1 patient

#### TREATMENT

All infections, with the exception of one, were surgically drained. The conservatively treated patient was a University student, with an infection of the ulnar bursa following a palmar bruise acquired while playing kittenball. It subsided com-

pletely after three days' treatment with an ice pack. In twenty-six surgically operated cases, one drainage sufficed in fourteen cases; six of these, however, had been previously drained on the outside. Of the remaining twelve cases requiring multiple surgical intervention, forty drainages and five finger amputations were performed. Totalling the thirteen drainages done prior to admission and the drainages and amputations done at University Hospitals, we find an average of 2.7 operations per individual case. In patients requiring more than one operation, the average was 4.33 per individual. The duration of the hospital stay ranged from one to 104 days; with an average of 32.3 days.

No organisms were isolated in five cases, and three cultures showed no growth of any bacteria. *Streptococcus haemolyticus* in pure culture was cultivated from five patients, while *Staphylococcus aureus*, also in pure culture, was obtained from six patients. Mixed cultures of *Streptococcus haemolyticus* and *Staphylococcus aureus* were obtained from five patients. Other bacteria mixed with streptococci and staphylococci included diphtheroid bacilli, *Escherichia coli*, and *Escherichia typhosus*. One pure culture of gonorrheal organisms was reported. It is of interest that the *Streptococcus haemolyticus* was discovered, either in pure culture or mixed with other organisms in 50 per cent of the patients, while the *Staphylococcus aureus* was reported to be found in 55 per cent.

The complications in order of frequency were: lymphangitis with adenitis, tendon necroses, osteomyelitis of the phalanges and carpus, cellulitis of dorsum fingers and forearm, and suppuration of joints including finger joints, wrist and shoulder.

A follow-up was possible in sixteen of the twenty-seven patients. Three of them made complete recoveries but these three patients had the infection for an average of only two days' duration before admission. One was treated conservatively and single drainages sufficed in the other two. One patient with finger theca infection of two days' duration prior to admission had about 30 per cent flexion of the finger. Three patients had a residual solitary stiff finger; one was a theca infection, the second an index thecal infection complicated by a palmar thenar space infection, and the third had an ulnar bursitis. These patients were ill an average of 10.7 days' duration before admission. Five patients having 50 per cent hand function had an average duration of their infection prior to admission of 9.6 days. The four patients with the poorest results, one with a completely stiff hand, were ill an average of thirteen and one quarter days prior to admis-

(Continued on page 711)



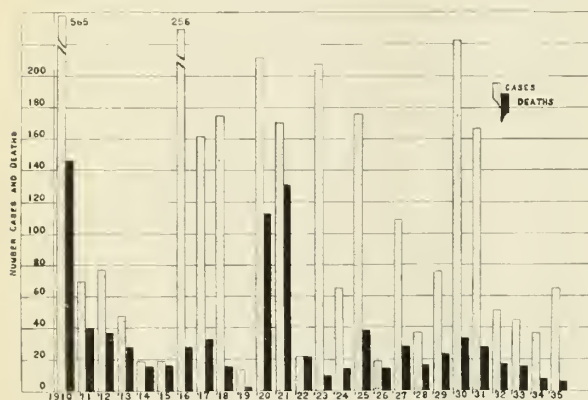
# STATE DEPARTMENT OF HEALTH

*Walter Diering*

## POLIOMYELITIS

### *Incidence in Past Years*

Iowa has in former years, notably in 1910, 1916, 1920, 1921, 1923, 1925, 1930 and 1931, suffered undue prevalence of poliomyelitis. These peaks of incidence are evident in the accompanying bar diagram, which is based on figures, some of which were obtained from former biennial reports of the Iowa State Department of Health.



Poliomyelitis cases and deaths in Iowa—1910-1935

Unusual prevalence of poliomyelitis has not been experienced in Iowa since 1930 and 1931. The reported incidence of the disease in this state has been greater in 1936 than in the previous two years. Whereas in 1934 reported cases in Iowa numbered thirty-seven, with sixty-five in 1935, the figure is increased to seventy-four for the first eleven months of this year. A sharp rise in the incidence of this disease was reported in Illinois, particularly in September and October of the current year. Is a major outbreak of poliomyelitis due to invade Iowa in 1937?

### *Early Diagnosis*

An excellent account of symptoms and signs of onset, and of the preparalytic stage of poliomyelitis, was presented by Sidney O. Levinson, M.D., Medical Director of the Samuel Deutsch Serum Center, Michael Reese Hospital, Chicago, at a meeting of the Webster County Medical Society in Fort Dodge, November 27, 1936. During the past six years, Dr. Levinson has had the opportunity of examining personally 200 patients in the prepara-

lytic stage of poliomyelitis, in addition to others in whom paralysis was already present at the time of report. In brief, the clinical picture in preparalytic poliomyelitis as portrayed by Dr. Levinson, is as follows:

#### 1. Systemic Phase

Fever, malaise, rapid pulse, gastro-intestinal disturbance and sore throat are symptoms and signs of onset in the average case. There may be many such cases which recover within several days and show no further manifestations. As attending physician on such cases, the suggestion is to "ask the parent to call you back." A small number of these patients advance from the systemic to the second or preparalytic stage.

#### 2. Preparalytic Phase

When the parent calls back, the child is likely to appear sicker than before. Complaints are of headache and pain in the neck or back, symptoms referable to the nervous system. The throat may be injected. Neurologic examination shows neck and back rigidity. An attempt by the child to approximate the chin to the chest causes pain. On bending forward from the sitting position, the back remains rigid, the child uses the hands for support, and there is pain in the lumbar region. The patient is apprehensive, tremor of extended hands is noted and inequality of reflexes. The next step is to do a spinal puncture, which is of great aid also in recognizing the bulbar type of poliomyelitis. The cell count, mostly lymphocytes, may range between 50 and 250. With an increased cell count, in addition to the above mentioned findings, a diagnosis of poliomyelitis is made. This is the stage for convalescent serum therapy. Although fifty per cent or more of the patients recover naturally without paralysis, from twenty to fifty per cent are in danger of paralysis, unless proper serum therapy is instituted.

Conditions which need to be ruled out in differential diagnosis include encephalitis, acute pharyngitis, tuberculous meningitis, acute upper respiratory infection, peripheral polyneuritis, enterocolitis and meningococcic meningitis. A prominent clinician suggests that poliomyelitis can be diagnosed with two things, a healthy suspicion and

a spinal puncture. "Be wary of the patient with headache, stiff neck and stiff back!"

#### *Convalescent Poliomyelitis Serum*

In Dr. Levinson's experience, remarkable results have attended the use of convalescent poliomyelitis serum. The minimum amount of serum recommended for a child is 100 cubic centimeters, for an adult, 200 cubic centimeters, and for the bulbar type of disease, 300 cubic centimeters, administered intravenously.

#### THE DOUBLE-BARRED CROSS

The double-barred cross is an emblem of the modern crusade of health workers in the campaign against tuberculosis. This emblem had its origin in Europe during the middle ages. It is of unusual interest that one of the stately manors in the far north of Jutland in Denmark should bear in its masonry as a connecting link with the past, this particular emblem of the cross. The accompanying photograph of part of the main wing of Odden, the northernmost of the many manors to



be seen in Denmark, shows the double-barred cross. This photograph is taken from an article by Carl Dunreicher entitled "Ghosts and People in Danish Manors" and printed in the *American Scandinavian Review* for December, 1935. Mr. Dunreicher says of Odden manor: "It was very little I got to know of its history, however, for a previous owner had allowed the maids to use all the old documents and deeds as kindling in the fireplaces. Consequently I could get no explanation of the idea behind the curious double cross on the outside of the main wing." It is significant that the emblem of the double-barred cross should be preserved to this day in the wall of a far off manor in Denmark. Significant also is the fact that Einar Holboell, a Danish postal clerk, should in 1904 be the first to create a Danish Christmas seal and with it an idea which has since extended to all parts of the modern world.



Readers of the *JOURNAL* will be interested in a brief account of the double-barred cross, its history and adoption as the emblem of the campaign against tuberculosis. The cut for the accompanying picture of the double-barred cross and the literature from which the following three paragraphs are taken, were obtained through courtesy of the Iowa Tuberculosis Association:

"The use of the double-barred cross as an emblem of tuberculosis warfare by medical science has an interesting origin. It was at a meeting of the International Conference on Tuberculosis held in Berlin in 1902 that Dr. Sersiron of Paris proposed that the ancient Lorraine cross be made the emblem of the fight against the White Plague. The suggestion was received enthusiastically, for the Lorraine cross was eminently suited for such a purpose. It dated back to the ninth century when it was made the emblem of the eastern branch of the Christian church. To this day it remains the emblem of the Greek or Orthodox Catholic church. From the eleventh to the fourteenth centuries the crusaders, through contact with the Eastern church in Palestine, familiarized Europe with it. Godfrey, Duke of Lorraine, a leader of one of the first crusades, saw the cross in Jerusalem, and adopted it as his standard when he was elected Christian ruler of the Holy City in 1099. It is generally believed that after his return to France it became the emblem of the house of Lorraine. It is still known in France as the Lorraine Cross and differs from the Eastern church cross in one respect only: the lower bar is nearer the base.

"During the World War one of the divisions of the American Expeditionary Forces used the Lorraine cross for its shoulder insignia. The Masonic order has also used the double-barred cross in various ways for many centuries, although the indications are that the Masons adopted their emblem from the Jerusalem cross and not from that of the house of Lorraine. Similar adaptations have been utilized by religious, political, and fraternal organizations for hundreds of years.

"The adoption of the cross by the anti-tuberculosis movement in 1902 was purely accidental and had no relation to its previous uses. No effort was made, at that time, to standardize its form or proportions. The result was that everywhere in Europe and in the United States double-barred crosses of varying sizes appeared. In 1906 the National Tuberculosis Association, by special resolution, adopted the double-barred cross as its emblem, but it was not until 1912 that a definite effort

(Continued on page 711)



## OFFICIAL NOTICE

The Board of Trustees of the Iowa State Medical Society, at its regular meeting on November 11, 1936, accepted the resignation of Ralph R. Simmons, M.D., editor of the JOURNAL, to become effective January 1, 1937. Lee Forrest Hill, M.D., of Des Moines was chosen to succeed Dr. Simmons as editor. Dr. Simmons' resignation was necessitated by his recent promotion to the position of Medical Director of the Equitable Life Insurance Company of Iowa. He will continue to serve the members of the Iowa State Medical Society in the capacity of Associate Editor of the JOURNAL.

The Board of Trustees wishes to take this opportunity of paying tribute to the contribution which Dr. Simmons has made to scientific medicine and to the medical profession of Iowa in the many years in which he has directed the activities of the JOURNAL. His pattern, as well as his precepts, is unsurpassed. His first three years of JOURNAL work were spent as the valued associate of Dr. David S. Fairchild, paragon of Iowa medicine and literature. Upon the retirement of Dr. Fairchild in 1928 as editor, Dr. Simmons conducted the work most ably with no diminution in the quality of the JOURNAL. To it he brought the fruit of his knowledge of progressive and expanding journalism. Slowly and steadily, in keeping with his quiet dignity, new features and improvements were added to our already noteworthy publication, until its high standards brought it recognition in national literary and scientific circles as one of the leading medical journals in the United States. Credit for such ranking is in no small measure due to our retiring editor.

Not only did the increasing number and quality of original papers attest to the astute judgment of the editor; especially did the editorial section reflect his poised and judicious selection of the real from the sham, the permanent value from the temporary, the momentous from the incidental of the maelstrom of events that have swept the medical world with increasing vigor in the past few years. Simultaneously with its scientific growth the JOURNAL has remained the official organ of the Iowa State Medical Society, the mouthpiece of the medical profession in the state, a familiar and homely part of every physician's equipment.

Dr. Simmons has indeed been a loyal and faithful servant of the Iowa State Medical Society. In return the Society wholeheartedly rejoices in his promotion, commends his earnest efforts in its behalf and congratulates itself that the intimate association with him is to be maintained in his relationship of associate editor of the JOURNAL.

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The JOURNAL of the

Iowa State Medical Society

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A CHANGE IN THE EDITORSHIP OF THE

JOURNAL\*

At a recent conference of medical editors, considerable thought and attention was given to the problem of securing a more thorough reading of the JOURNAL by its subscribers. Every editor feels the challenge of this problem and your editor of the past ten years is no exception. Many lesser problems have developed from time to time but none has been so perplexing as that of obtaining the critical attention of some twenty-five hundred persons who each month receive our publication. We have attempted to review carefully the material used to assure its authority, its timeliness and newness. We have attempted by departmentalization to group our material so that it would become more easily accessible and useful. We have excluded from the JOURNAL reading notices which we felt were valueless except to an advertiser. We have attempted to meet our stewardship in reflecting an official attitude on problems pertaining to the practice of medicine, and further, to provide a medium for the official report of all officers and committees of the State Society. Through the use of newer type fonts and a higher grade of gloss paper we have furnished our readers with a more modern and excellent expression of the printer's art. We have even changed the cover of the JOURNAL to what we hope is a more attractive and dignified form; but with all this effort and meticulous care we cannot escape the conviction that our JOURNAL is not as generously read as its contents might appear to justify and this, kind readers, is the one regret of your retiring editor. Would that we could pass on to a successor a magazine of such compelling interest that we could with safety assume the wholesome interest which its editor normally and naturally craves. However, it is not primarily to these unfulfilled ambi-

\*See Official Notice, page 694, this Journal.

tions that we request your attention. Rather would we express our sincere thanks for the fine spirit of cooperation which we have had on every hand and to assure those who, by their word and deed, have assisted our efforts during the past ten years, that their part has been a most important one in any small success which we may have achieved. When disappointments and discouragements loomed large, your sympathetic interests and assistance have sustained us and stimulated a renewed effort. May I bespeak for a successor whom I now introduce, this same loyalty and cooperation which has been so unstintingly accorded me during the past years. He will need your help and encouragement and after all, his work is your work and can prosper only when you assume your full responsibility in making your JOURNAL the journal you would like it to be.

Dr. Lee Forrest Hill Becomes Editor

Having accepted my resignation as Editor of the JOURNAL, an action necessitated by an increased responsibility in other work, the Board of Trustees, after careful investigation and by unanimous vote named as a successor, Dr. Lee Forrest Hill of Des Moines, a physician well known to many of you through his activities in both state and



Dr. Lee Forrest Hill

county medical circles. Born in West Runney, New Hampshire, on February 8, 1894, Dr. Hill attended high school at Manchester, New Hampshire, and later Dartmouth College. His medical course was pursued in Harvard University and it was from this institution that he was graduated in 1920. Following his graduation Dr. Hill continued his studies by postgraduate work at the Boston City Hospital, Infants' Hospital and the South



Department of the Boston City Hospital. Later he studied under Dr. Marriott at Washington University, St. Louis, Missouri. On active duty in the United States Navy from September, 1918, to December, 1918, the doctor's work was that of hospital apprentice. Following his discharge from the service and his marriage to Marian Robbins, he established his office in Des Moines and has continued practice since that date in this city. Dr. Hill has taken an active interest in scientific medicine, and in the proceedings of the county, state and national societies. He is a member of the Council of the Polk County Medical Society, and chairman of its Committee of Child Health and Protection. He has prepared the Annual Critical Reviews on Tuberculosis in Children, appearing in the *Journal of Pediatrics* between the years 1932 and 1936. He has been a frequent contributor to medical journalism. He belongs to the Pediatric Club of Iowa, the American Academy of Pediatrics, as well as being a Fellow and "Certified Specialist in Pediatrics" by the American Board of Pediatrics.

While this thumb-nail biography may factually serve to introduce your new editor, only personal contact can reveal the genial spirit, the seasoned judgment and the exceptional ability of the man. Ever a student, he has kept abreast of the new developments in medical science and maintained a wide familiarity with current medical literature. He comes to the editorship of the JOURNAL with experience in medical journalism and an enthusiasm for medical advancement which assures his success in this new work. With your help and support he can carry the JOURNAL to new heights and make it truly worthy of the distinguished profession of this great state.

#### ANNUAL CONFERENCE OF SECRETARIES AND EDITORS

Believing that an exchange of ideas between the several officers of the state society and those of the national association is not only consistent with the program for the development of these organizations, but also that much is to be gained by each body through such a conference, the American Medical Association entertained such a meeting in their Chicago headquarters on November 16 and 17. To this meeting, the secretaries and editors of the constituent state societies were officially invited. Other state officers interested in the problems under discussion also attended.

The Conference was greeted and officially called to order by Dr. Rock Sleyster, Chairman of the Board of Trustees of the American Medical Association. An address by Dr. Charles Gordon Heyd, of New York, President of the American Medi-

cal Association, epitomized the growth and development of medicine from the earliest time down to the present. He stressed the part played by the state societies in the scheme of organized medicine and referred to the state organizations as "the body, the soul, and the life of the American Medical Association."

Few matters have been given greater consideration by organized medicine during the past few years than those having to do with methods and means for elevating the standards of practice in the healing art to the end that the public may receive a more complete and effective service. Particularly outstanding in this regard is the program of determining fitness in the fundamental sciences as required under the basic science law. To advise the conference on the present status of the basic science law as now effective in various states and to present a yardstick for determining the value of these several laws, Mr. J. W. Holloway of the Bureau of Legal Medicine and Legislation of the American Medical Association, addressed the Conference. He reviewed the operation of the laws in the several states now having these statutes, and stated that approximately eighty-five per cent of the medical graduates applying for examinations passed these qualifying boards. Only fifty per cent of the osteopaths were successful in securing certification, while less than twenty-five per cent of the chiropractors secured a passing standing. He concluded that in those states where a basic science law was effective there was a very definite and positive trend in lessening the number of incompetent practitioners seeking licenses in that particular jurisdiction. Experience so far has shown that inadequately trained osteopaths and chiropractors are reluctant to seek licenses in states having basic science laws. Mr. Holloway concluded that the basic science laws very definitely protected the public health and should, therefore, receive the active support of organized medicine.

Furthering the plans for the elevation of medical practice, papers were delivered on the Michigan filter system, a plan by which state medical care for indigent children is given only after a thorough check has been made of the economic and social needs of the applicants; nursing service and hospitalization; and the Public Health League of California, an organization of doctors, dentists, nurses and laymen, totaling 434, whose avowed purpose is to foster and encourage sound medical legislation in their state. The discussion of these papers brought out many interesting facts. New Jersey, for example, looks forward to a combination of the principles of a basic science law in their

medical practice act so that one examination and one board may serve both functions. Texas has operated for nearly thirty years under a practice act which is believed sufficient for the needs in that state. Under their law the left-handed practitioners have been curbed and limited in their operations. In support of the dual board, it was pointed out that much virtue lies in the fact that the basic science boards are and should be composed of non-medical scientists, a fact which minimizes prejudice against such regulations, particularly from non-medical healing groups, and also one which assures unbiased scientific coverage of these fundamental studies.

The afternoon session of the first day was introduced by an address by Dr. J. H. J. Upham, President Elect of The American Medical Association. He stressed the importance of recognizing local members in the programs of the State Societies. The State organization can only thrive through general and wholehearted interest which can be maintained only when the rank and file of the members participate in the scientific sessions. He also stressed the importance of fellowship in The American Medical Association. At this time only slightly more than fifty per cent of the members are fellows; only fellows receive the *Journal of The American Medical Association* and have the privilege of participating in the scientific and business meetings of The American Medical Association.

Surgeon General Thomas Parran of the United States Public Health Service, spoke of the relation of public health to the Social Security Act. He defined public health activities as those bearing remotely or directly upon human welfare and detailed the provisions of the Social Security Act in this regard. Decentralization in the administration of public health work, withdrawal of health work from party politics, and the qualification and certification of physicians for public health work, were stressed as fundamental and primary principles in any plan of public health administration that is to succeed. He discussed at some length the grants made for disease prevention and public health aid to the state in their local problems as well as those made for a more effective national health program. Following along a similar line, Miss Katherine S. Lenroot, Chief of the Children's Bureau of the United States Department of Labor, spoke of the relations of the Children's Bureau to the Social Security Act. She detailed the moneys spent in promoting health among children as well as reducing the mortality in infants throughout the country. Forty-one states are cooperating in plans for crippled children, forty-

two states in child welfare in rural communities, while practically every state and territory has adopted programs of child welfare acceptable to the Children's Bureau. She pointed out that approximately twenty per cent of the federal funds spent in this work are paid to physicians and medical personnel. The money is allocated to state bureaus for distribution.

The Tuesday morning session of the Conference was largely occupied in a discussion of the problem of insurance against alleged malpractice. The subject was introduced by Mr. Thomas D. McDavitt of the Bureau of Legal Medicine and Legislation of The American Medical Association. The plans in operation in the several states were discussed, particularly the plan now operating in New York state and that in Illinois. In the former the underwriting of malpractice insurance is undertaken by the state society on a cost basis. While not all of their members participate in the program, those in charge have found that they are able to finance the project on an annual premium basis of less than \$30.00 per member. Those members who carry insurance in private companies, of course, pay no part of the cost of the society's insurance program; neither do they receive any benefits. If the attorney for the state society is desired in defense of a suit, the non-participating physician must pay the attorney's fee. While the number of suits has not been greatly reduced under this plan, the number of blackmail cases has very materially lessened.

The meeting was generously attended and the discussions were not only timely but highly informative. The full text of the several papers presented at the Conference will be published in the *Journal of the American Medical Association* during the next few months.

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#### MENTAL FATIGUE

It is common knowledge that brain workers suffer from fatigue just as surely as muscle workers. The business executive may observe lost mental efficiency with signs of exhaustion as the business day progresses. At the end of such a day he would instinctively seek relief from mental fatigue through sleep or more commonly, perhaps through a game of golf or tennis, a trip to the theatre, or an evening at a night club. The muscle worker will find more recreation in a good book or a game of cards than he would find in either golf or tennis, although a trip to the theater or the night club might be as restful to him as to the brain worker. In each instance, the recreation sought should provide the physiologic rest required to restore vitality to the fatigued parts.

Too often we deceive ourselves concerning rest.



The attorney who spends long hours unraveling legal problems during his working day may feel that he is resting by spending the evening at the bridge table. The physician whose daily contacts require the review of medical knowledge may feel that a quiet evening spent with medical journals or textbooks provides the necessary relaxation. At best such diversions offer only partial rest and usually prove ineffective as restoratives. Brain work demands brain rest for recuperation just as surely as muscle work demands muscle rest. Muscle fatigue, however, appears more understandable than mental fatigue and consequently is more scientifically treated. Mental fatigue causes physical lassitude inviting mental rather than physical endeavor so that a vicious cycle is established and brain fog or exhaustion results.

Nature takes cognizance of a physiologic need for frequent intervals of rest from mental work corresponding closely to the rest period established for muscle work. Between diastole and systole the heart muscle enjoys a brief period of complete muscle rest. A similar phenomenon has been observed during mental work by Professor Arthur G. Bills of the University of Chicago. His recent investigations indicate that the mind "blocks" several times every minute during active mental work, providing comparable rest periods for the brain cells. When mental fatigue occurs the "blocks" may appear as often as eight or ten times each minute and last as long as four seconds. While blocking is not complete during this period of mental rest, Professor Bills points out that mental efficiency is low although the sequence of thought is not entirely lost. He believes that these mental "blocks" partly account for the "er-r-r-r" and the "ah-h-h" which public speakers are prone to put between words. He further cites that these "blocks" are particularly conspicuous when a person is doing rapid calculating. Such a person will observe that every so often he is unable to proceed with the calculation for a few seconds or may lose track of the work already done. Professor Bills looks upon these mental "blocks" as enforced resting periods and a protective mechanism against excessive impairment of mental efficiency.

These observations emphasize the physiologic soundness for the need of prescribing recreation as well as medicine to the mentally tired patient. It is not sufficient to advise rest for a patient with the diagnosis of chronic mental exhaustion. The successful physician must go further and explain to the patient the means by which he may obtain the rest required. Insight must be obtained into his daily habits and on this basis restful and recuperative activities outlined. In this connection,

it is well for the physician not to lose sight of the fact that he too may suffer from mental as well as physical fatigue, and an intelligent self analysis insofar as work and play are concerned may open the way to proper recreational pursuits which may increase his professional efficiency and materially prolong his useful career.

#### OLD AGE PENSION TAXES AND THE PHYSICIAN

Inquiries have been reaching the State Society office regarding the extent to which the taxes for carrying out the old age benefit provisions of the Social Security Act will affect physicians at the present time. The following information has been compiled from reports and data available and is being presented for the guidance of members of the Iowa State Medical Society.

Various forms are being distributed at this time to employers and employees throughout the United States. The supplying of these statistical data by these completed blanks is one of the necessary procedures in making effective the old age benefit provisions of the Social Security Act. There are two main divisions of these old age pension provisions. One is for old age retirement benefits, the provisions of which affect employers and employees in those offices or organizations in which there are one or more persons employed, but less than eight persons. Additional tax provisions for unemployment insurance affect those in places where there are eight or more employees.

How is the physician affected?

*The Physician as Employer.* Each physician employing one or more persons in his office is subject to the tax provisions which establish old age retirement benefits for employees. The forms to be filled out by employers should have been returned to the local postmaster by November 21. Unless a physician employs eight or more persons, he is exempt from the taxing provisions of that portion of the Act relating to unemployment insurance.

*The Physician as Employee.* As would be expected, physicians generally are considered as independent contractors and are thus not subject to the taxes imposed on employees, except in those cases where a physician is regularly employed on a part time or full time basis. In that event, he is classified as a regular employee and is subject to the tax provisions for employees. These forms were to have been filled in and returned on or before December 5, 1936. More recently the newspapers have reported that this date has been ex-

\*Physicians and old age pension taxes under the Social Security Act. Jour. Am. Med. Assn., cvii:1812 (November 28) 1936.

tended to December 15, 1936. If a physician's work as employee is done for, or in connection with, any division of the government or for non-profit religious, charitable, scientific, literary, or educational organizations, he is still exempt from the provisions stated.

*The Physician's Employees.* Persons employed in physicians' offices, when there are less than eight employees, are subject to only the tax provisions for old age retirement benefits and, as pointed out, should fill out the appropriate forms and file them with the local postmaster by December 15.

These old age retirement taxes for employers and employees affect wages paid on or after January 1, 1937. The scale of payment is as follows: one per cent of wages paid in the years 1937, 1938 and 1939. The tax is increased one-half of one per cent every three years until it reaches three per cent of wages paid in 1949 and each year thereafter. As pointed out by the *Journal of the American Medical Association*\* "employers' and employees' taxes will be collected by means of monthly returns to be filed by employers." The physician-employer should bear in mind that he must not only pay to the local collector of internal revenue an amount equal to that paid by all his employees but also that he, as employer, is responsible for deducting from his employees' wages, the employees' tax and transmitting that, with his own, to the collector.

Full details regarding necessary records to be kept, method of executing returns, etc., will be found in Regulation 91, which may be secured from zone offices of collectors of internal revenue. These offices are located in the post offices or federal buildings in the following cities: Council Bluffs, Sioux City, Fort Dodge, Mason City, Waterloo, Dubuque, Davenport, Cedar Rapids, Burlington and Ottumwa. This form may also be secured from the Department of Internal Revenue located in the Federal Building in Des Moines.

## MINUTES OF MEETINGS OF STATE SOCIETY OFFICERS

### Meeting of Board of Trustees November 11, State Society Office

*Roll Call.* All members of the Board were present. Others in attendance were: Fred Moore, Des Moines, chairman of the Committee on Public Policy and Legislation; Robert L. Parker, Des Moines, secretary; Prince E. Sawyer, Sioux City, President.

*Transactions.* 1. Approval and signing of monthly bills. 2. Resignation of Dr. Ralph R. Simmons, Des Moines, Editor of the JOURNAL OF THE IOWA STATE MEDICAL SOCIETY, tendered and accepted. Dr. Simmons was asked to act as Associate Editor and ac-

cepted. 3. Appointment of Dr. Lee Forrest Hill of Des Moines as editor of the JOURNAL. 4. Chairman of the Board and the Executive Secretary directed to prepare for publication in the JOURNAL an expression of appreciation of Dr. Simmons' services as editor. 5. Authorization given for 1936 audit of the Society books to be made by Mr. Mills of Widdup and Company of Des Moines. 6. Bids for the 1937 JOURNAL printing contract examined. Contract was given to the lowest bidder, the Wallace-Homestead Company of Des Moines. 7. Executive Secretary authorized to purchase three late model rebuilt typewriters to replace older models in office. 8. Approval of the Board granted for renewing the lease of the office headquarters for another five year period at the same rental. 9. Authorized expenses of Dr. R. D. Bernard of Clarion to attend group meeting in Chicago for planning program of Northwest Medical Conference, and Secretaries' Conference. 10. Approved Secretary's request to grant expenses of Executive Secretary to attend group meeting for planning Northwest Medical Conference program and Secretaries' Conference at American Medical Association headquarters. 11. Report of Speakers Bureau. Letter and article to be sent to newspaper approved. Agreed that the Bureau should try this project for a few months, after which Board could appropriate funds if the project proved satisfactory. 12. Report of chairman of Committee on Public Policy and Legislation regarding proposed articles on state medicine to be sent to entire membership.

### Meeting of the Council

November 11, Hotel Fort Des Moines

*Roll Call.* All members present except Dr. F. P. Winkler of Sibley. Others in attendance: Prince E. Sawyer, Sioux City, President; F. P. McNamara, Dubuque, member of the Cancer Committee; D. J. Glomset, Des Moines, chairman of Speakers Bureau Committee.

*Transactions.* 1. Report of the solution of the Dubuque County membership situation. Chairman of the Council directed to write a letter of appreciation to Dubuque County Medical Society. 2. Discussion of legal opinion on duties and authority of the Council. 3. Report of the Executive Committee of the Cancer Committee. Attention was called to the rough draft of the manual on diagnosis and treatment of cancer for Iowa physicians which is being prepared by the Executive Committee. Copies of material had been sent to all Councilors, whose criticisms and suggestions were invited. 4. Report of the Council Committee on Constitution and By-Laws. Committee recommended certain changes which were deemed necessary if the Council was to have the power to discharge its duties and obligations. Other changes were recommended by other members of the Council, to be drawn in final form by the committee and recommended to the State Society Committee on Constitution and By-Laws. 5. Discussion of the importance of cooperation between various committees and coordination of their various activities. 6. Discussion of medical relief problems and the Iowa emergency

(Continued on page 706)



# The Christmas Seal and Anti-Tuberculosis Campaign

H. E. KLEINSCHMIDT, M.D.

Director of Health Education, National Tuberculosis Association

Why has so much emphasis been placed on discovering tuberculosis early? For the reason that the early case is cured so much more surely and promptly than the later case, and also because the longer any person with tuberculosis is allowed to go untreated, the more likely it is that other persons will become infected by him.

We classify the disease into three groups: early, moderately advanced, and far advanced. At this stage in our scientific progress one would expect that the great majority of people who have tuberculosis are discovered while still in the early stage. This is not, however, the case. Reports from tuberculosis sanatoria in the United States show that about five out of each six patients who enter these institutions are already in an advanced stage. Furthermore that ratio has not improved perceptibly during the last ten years. Are the doctors to blame for this poor showing?

It is true that all too often the story which the patient tells is a tragic one of delay in diagnosis. From these stories it is all too evident that quackery still flourishes. It is equally true, however, that for years conscientious physicians have been alert, and ever on the watch for the earliest indications of tuberculosis; they have struggled to raise their batting average of early cases discovered. The blame cannot be laid entirely on the doorstep of the physician.

A more potent reason for the delay in diagnosis is that the doctor is obliged to wait until symptoms drive the patient to his office, and by the time symptoms appear considerable damage has already been done. It is also a fact that the progress from early tuberculosis to the moderately advanced stage is sometimes a very rapid one taking place within a few days, and thus it happens that some patients who have acted promptly nevertheless arrive at the sanatorium with the disease already advanced.

In an attempt to combat this deplorable state of affairs, efforts have been made to devise some way of detecting tuberculosis in its "unseen" stage among apparently healthy people. The routine examination of high school and college students by means of the tuberculin test and the x-ray bring



to light early cases that might otherwise remain undetected and progress to disabling disease. Dr. H. D. Lees, who is the Director of the Student Health Service at the University of Pennsylvania, reports the discovery, by the tuberculin x-ray method, of eighteen cases of adult type pulmonary tuberculosis of whom all were symptomless. Only one had to be dismissed from school. Contrast this with the usual method of "passive" case finding, i. e., waiting for persons to apply to the doctor for the relief of symp-

oms. Dr. Lees reports that during the same period sixteen cases of tuberculosis had been discovered among students who came to the doctor because of one or another symptom. In thirteen of the sixteen the condition was advanced to such an extent that the patients were obliged to leave school.

In high schools the story is substantially the same except that fewer cases of serious tuberculosis are found. This work, however, is extremely valuable because when one follows up the adolescent child with a supposedly harmless tuberculous infection, the search often leads to an open case in the home which was the source of infection. The real threat to the youngster is probably not the presence of a few germs, but daily contact with a person who has active tuberculosis.

In recent times the fight against tuberculosis has become more aggressive. No longer do we wait until the enemy is visible, but we search him out while he is still in hiding. Workers with tuberculosis associations have proved the value of group tests of students and young people. They have supported health departments, sanatoria, colleges and schools in the various enterprises which promise to eradicate tuberculosis. Tuberculosis associations have never ceased to tell the story of tuberculosis to all people in bold type and with conviction. If the Christmas Seal could speak it would say, "My purpose is to stop tuberculosis in its tracks long before it has become something that you and I and the newsboy on the corner will be able to see."

Tuberculosis stopped means lives—young lives and precious ones—saved.

# SPEAKERS BUREAU ACTIVITIES

## MERRY CHRISTMAS

Each year as the holiday season approaches, and the Speakers Bureau reviews the work accomplished in the twelve months which have passed, it is grateful for the fine cooperation received from many physicians in the state. This year more than ever the work has been a pleasure, and in looking back, the committee wishes to thank those men who have done so much to help it and the medical profession in the state. To Dr. John C. Parsons of Creston (now of Des Moines), Dr. Ludwig Gittler of Fairfield, Dr. C. A. Boice and Dr. H. F. Masson of Washington, Dr. Ralph F. Luse of Clinton, Dr. R. J. Galvin of Oelwein, Dr. Thomas McMahon of Garner, Dr. W. R. Brock and Dr. K. W. Myers of Sheldon, Dr. L. C. Kern as committee member and Dr. F. R. Sparks of Waverly, Dr. James Dunn as committee member, Dr. John I. Marker and Dr. Henry A. Meyers of Davenport, Dr. L. F. Catterson and Dr. L. R. Rodgers of Oskaloosa, and Dr. R. C. Gutch of Chariton, the committee wishes to extend its very sincere thanks for the help they have rendered in making postgraduate courses successful.

To those men of the University of Iowa who have given so generously of their time and effort to the work of the Bureau, the committee is deeply indebted; and to those many physicians throughout the state who have been so generous in furthering the work of the Bureau through scientific, lay and radio talks, the committee is most grateful.

To each and every one of these physicians, the members of the Speakers Bureau say: "A very Merry Christmas and the happiest of New Years."

E. B. Bush  
H. L. Brereton  
James Dunn

D. J. Glomset  
L. C. Kern  
S. D. Maiden

## "REFRESHER" COURSES

The final lectures have been given in the fall postgraduate courses, and the Speakers Bureau is turning its attention to plans for spring centers. Requests have been received from two districts of the state for "refresher" courses, and in order to meet them and other requests which will no doubt be made, the Bureau has asked the Iowa Pediatric Club to formulate a series of lectures for presentation at such courses. The obstetricians in the state are also working on plans for lectures, and it is hoped to combine the two groups into teams, and thus present two lectures each night at the various centers.

The Speakers Bureau feels very strongly that there are many men in Iowa capable of presenting these lectures, and wishes to utilize the talent within the state insofar as possible. For that reason, Iowa clinicians will be used in preference to men from outside the state.

The work of planning the itinerary of the speakers

will start shortly, and the Bureau would be very glad to hear from communities desiring such a course. Last summer the eastern part of the state was covered, and it is felt that the western half is entitled to first choice of the coming series, in order that every section of the state may participate in the courses. However, every request will receive full consideration, and an effort made to fill it if at all possible.

## PRESS RELEASES

A new activity was launched by the Speakers Bureau during the month of November; that of providing weekly articles on medicine and health for the newspapers in Iowa. This work has been carried on in Wisconsin, Minnesota, and Illinois for several years by the State Medical Societies in those states, and has been deemed worthwhile. Dr. James Dunn of the Speakers Bureau Committee made an intensive study of the methods used by the other states and then formulated a simple and very practical plan for trial in this state. The releases are prepared in the central office, approved by a censorship committee of five physicians, and are then mailed to the newspapers in the state. The response to date has been most gratifying, and it is hoped that even more newspapers will avail themselves of the service as time goes on.

It is the earnest conviction of the committee that the preparation of these articles is a worthwhile phase of the Bureau's work. They are a concrete expression of the medical profession's desire to prevent disease whenever possible, and to alleviate it most effectively.

It is possible for every member of the Iowa State Medical Society to aid in making this temporary project a permanent part of the activities of the State Medical Society. The Speakers Bureau would appreciate it very much if physicians in towns where the newspapers are publishing the articles would speak to the editor about them, and have their patients also mention them to the publisher. He should be encouraged to continue using them. The Bureau would also appreciate any suggestions or comments regarding the articles.

## RADIO SCHEDULE

WOI—Fridays at 4:00 P. M.

WSUI—Mondays at 8:15 P. M.

December 4 and 7 The Common Cold, Howard L. VanWinkle, M.D.

December 11 and 14 Winter Skin Protection, H. C. Willett, M.D.

December 18 and 21 Automobile Hazards, R. S. Grossman, M.D.

December 24 and 28 Christmas Talk.



# WOMAN'S AUXILIARY NEWS

*Edited by the Press and Publicity Committee*

Mrs. DEAN W. HARMAN, *Chairman*, Glenwood, Iowa

## POLK COUNTY

The Woman's Auxiliary to the Polk County Medical Society held its November meeting at the Hoyt Sherman Place. Mrs. H. I. McPherrin, program chairman, presented Mrs. M. N. Voldeng, chairman of Public Relations, who presided over a one o'clock luncheon. Mesdames J. A. Downing, S. E. Lincoln, W. R. Hornaday, Dennis Kelly, George H. Parmenter, and H. A. Minassian participated in the discussion on "Health Activities in Polk County." Mrs. Julius Weingart presented the girls' sextette from Roosevelt High School, under the direction of Miss Laura Duncan. Mrs. E. E. Gadd, Mrs. Clifford Losh, and Mrs. F. W. Fordyce served as luncheon hostesses.

## WASHINGTON COUNTY

The Woman's Auxiliary to the Washington County Medical Society held a joint meeting with the County Medical Society at Kalona, Tuesday, September 29. As this was the annual banquet and "guest night" there was an attendance of eighty or more. This included not only physicians and wives but also the nurses of the Washington County Hospital, the city schools, and the New Washington County Health Unit. All enjoyed the sumptuous "Maplecrest" turkey dinner. Dr. E. D. Miller, president of the Society, presided at the meeting. A pleasing feature of the evening was a fine tribute paid to Dr. J. C. Boice, of Washington, ninety year old member of the organization, by Dr. C. W. McLaughlin of Washington. Dr. Boice in responding, told in an interesting manner, experiences of pioneer days and of progress he has seen in the practice of medicine during his many years of active service. The evening's address was delivered by Professor W. J. Teeters, Dean of the College of Pharmacy, State University of Iowa. His subject, "Chemistry in the Detection of Poisons," was vividly presented with a display of exhibits. Professor Teeters stated "The poisoner still does his deadly work in Iowa, but the matter of poisoning is a dangerous undertaking. Poisoners cannot get away with it as they used to do."

## FROM THE PRESIDENT OF THE NATIONAL AUXILIARY

To the Members of the Auxiliary:

By the time this first issue of the 1936-37 News Letter is published the presidents of state and coun-

ty auxiliary groups will have received letters outlining the objectives of this administration. Our aims are simple and our ways of accomplishing them should be direct and simple as well. The auxiliary is free of politics and red tape—let us strive to keep it so. Our name tells a great deal—Webster defines the word auxiliary, when used as a noun, as "one that aids or helps." When the word is used as an adjective some of the synonyms may seem less flattering for there we find "subservient" and "subordinate" but when we consider that as members of this organization we are willingly subservient and subordinate it is quite a different matter. Now we may be proud that if we cannot be members of the parent body we can at least aid it and place ourselves under its direction.

There are times when certain individuals within our ranks feel that we should be less dependent. Careful consideration of the aims and objects of our organization as they are set forth in our Constitution shows us the fallacy of this. If anyone feels that the auxiliary should be entirely independent and act freely without considering the wishes of the greater body, that person has no place in the auxiliary, for by its very name our organization declares itself as a group secondary to a larger one.

During the coming year when a great deal of legislation directly or indirectly concerned with the medical profession will be brought before the public, we can show how clearly we understand our rôle as "helpers" by becoming a reserve force acting in the best interests of the doctors. We can accomplish a great deal by following the course laid out for us, by passing on to lay groups the viewpoint of the medical profession, by educating ourselves and others along health lines, and what may be harder for us than the other tasks, by remaining mute and quiescent until we are requested by our medical societies and our advisory councils to become active.

I realize only too clearly that this attitude may be considered mid-Victorian by many readers. Perhaps it is so but many things mid-Victorian have not been bettered and this honest acceptance of a fact that has both biologic and sociologic bases for truth does not seem to me to be anything shameful. To admit our limitations freely and to make the most of those privileges which are ours often results in greater accomplishment than comes from wasting strength chafing at immovable barriers.

Mrs. Robert E. Fitzgerald

## SOCIETY PROCEEDINGS

### Black Hawk County

The Black Hawk County Medical Society entertained Percival Bailey, M.D., of Chicago, as guest speaker for a meeting held in Waterloo, Tuesday, November 17. Dr. Bailey, who spoke on The Treatment of Common Neurologic Disorders, is professor of neurology and neurologic surgery at the University of Chicago, School of Medicine of the Division of the Biological Sciences.

### Cerro Gordo County

H. Dabney Kerr, M.D., of the College of Medicine, University of Iowa, was the principal speaker for the Cerro Gordo County Medical Society at a meeting held in Mason City, Tuesday, November 10. Dr. Kerr's talk on Radiation Therapy in Surgical Conditions was very well received by the members of the society. We were happy to have Dr. Hartam of Iowa City as a guest with Dr. Kerr. E. L. Wurtzer, M.D., of Clear Lake, presented a paper on Common Cardiac Syndromes in Circulatory Failure. The Fracture Committee was represented by Thomas A. Burke, M.D., of Mason City, who spoke on the subject of transportation of the injured from the site of the accident to the place where treatment is to be rendered.

H. W. Morgan, M.D., Secretary

### Cherokee County

On Monday, November 16, members of the Cherokee County Medical Society met at the Sioux Valley Hospital in Cherokee for a meeting at which time a paper on The First Infection Type of Tuberculosis was read by R. P. Noble, M.D. Dr. C. H. Johnson and Dr. J. H. Wise, were unanimously elected deputy counselor and chairman of the cancer sub-committee for Cherokee County respectively. The next meeting of the society will be on Monday, December 21, and Thomas D. Kas, M.D., of Sutherland, will discuss the tuberculosis survey which has been made in O'Brien County.

R. P. Noble, M.D., Secretary

### Clayton County Annual Meeting

A paper on The Legislative Program was presented to the Clayton County Medical Society by J. W. Hudek, M.D., of Garnaville, when that organization met in Elkader on Tuesday, October 30. Officers elected at the business meeting include Dr. E. G. Kettelkamp of Monona, president; Dr. J. C. Brown of Littleport, vice president; and Dr. P. R. V. Hommel of Elkader, secretary and treasurer.

J. W. Hudek, M.D., Secretary

### Clinton County

Horace M. Korn, M.D., of the College of Medicine, University of Iowa, addressed the Clinton County

Medical Society, at a dinner meeting held in Camanche, Thursday, November 5. Dr. Korn spoke on The Treatment of Cardiac Failure.

G. M. Ellison, M.D., Secretary

### Dickinson-Emmet Societies

The regular meeting of the Dickinson-Emmet County Medical Societies was held at the Gardston Hotel in Estherville, Thursday, November 19. H. W. Scott, M.D., of Fort Dodge, presented an illustrated lecture on Prostatic Resection. John C. Parsons, M.D., of Des Moines gave a paper illustrated by a film on the importance of testing school children for tuberculosis.

E. E. Lashbrook, M.D., Secretary

### Floyd County

The Floyd County Medical Society met in regular session Tuesday, November 25, in Charles City, and was addressed by Ruben F. Nomland, M.D., of the Department of Dermatology, College of Medicine, University of Iowa.

H. A. Tolliver, M.D., Secretary

### Hardin County Annual Meeting

The annual meeting of the Hardin County Medical Society was held in Eldora, Friday, November 20, and the following officers were named to head the society during the coming year: Dr. William Johnson of Alden, president; Dr. F. W. Hoolihan of Ackley, vice president; Dr. W. E. Marsh of Eldora, secretary; Eastman W. Nuckolls of Eldora, treasurer; Dr. J. A. W. Burgess of Iowa Falls, delegate; and Dr. C. M. Wray of Iowa Falls, alternate delegate.

W. E. Marsh, M.D., Secretary

### Harrison County

Edmond M. Walsh, M.D., of Omaha, Nebraska, was the speaker of the evening for the Harrison County Medical Society at a meeting held in Logan, Tuesday, November 10. Dr. Walsh spoke on Diabetes.

### Henry County

Members of the Henry County Medical Society were addressed by Julian D. Boyd, M.D., of the College of Medicine, University of Iowa, on Some Aspects of Nutrition in Childhood, at their meeting Friday, November 27, at the Harlan Hotel in Mt. Pleasant.

### Johnson County Annual Meeting

The annual meeting of the Johnson County Medical Society was held at Youde's Inn, Wednesday, December 2. Dean M. Lierle, M.D., professor and head of the Department of Otolaryngology, spoke on Diseases



of the Larynx, illustrating his remarks with lantern slides and colored motion pictures depicting the various lesions. Officers elected for the coming year are: Dr. I. A. Rankin, president; Dr. W. W. Herrmann, vice president; Dr. W. M. Fowler, secretary and treasurer; Drs. George C. Albright and E. M. MacEwen, delegates; and Drs. M. E. Barnes and H. R. Jenkinson, alternate delegates.

W. M. Fowler, M.D., Secretary

#### Linn County

The Linn County Medical Society will have as its guest speaker for Thursday, December 17, John Royal Moore, M.D., professor of orthopedic surgery, Temple University, Philadelphia. Dr. Moore will speak on Fractures of the Neck of the Femur. Discussion will be opened by Drs. Frank Peterson of Iowa City, Donald C. Conzett of Dubuque and D. E. Beardsley of Cedar Rapids. A ten minute paper will be presented by Dr. W. E. Peschau of Cedar Rapids.

T. F. Hersch, M.D., Secretary

#### Marshall County Meetings

The following program was presented for members of the Marshall County Medical Society at a meeting held in Marshalltown, Tuesday, November 3: Prognosis in Heart Disease, A. D. Woods, M.D., State Center, discussion by J. J. Noonan, M.D., Marshalltown; and Pyelitis in Children, Rodney C. Wells, M.D., Marshalltown, discussion by W. P. Marble, M.D., also of Marshalltown.

On Tuesday, December 1, George B. Eusterman, M.D., of the Mayo Clinic, Rochester, Minnesota, spoke on Helpful Hints in the Diagnosis and Treatment of Gastro-Intestinal Disorders. Election of officers resulted as follows: Dr. J. J. Noonan of Marshalltown, president; Dr. P. L. Marble of Liscomb, vice president; and Dr. Rodney C. Wells of Marshalltown, secretary and treasurer.

Rodney C. Wells, M.D., Secretary

#### Polk County

The regular meeting of the Polk County Medical Society was held at the Hotel Fort Des Moines, Tuesday, November 24, with approximately one hundred members in attendance. James E. Dyson, M.D., was called upon to outline the proposed immunization program sponsored by the Iowa State Department of Health. The following scientific program was then presented: Chronic Urethritis in the Female, Emory L. Mauritz, M.D., discussed by Drs. Clifford W. Losh, Oran W. King and A. G. Fleischman; Jealousy—Normal and Insane, Francis A. Ely, M.D., discussed by Russell C. Doolittle, M.D. Through the courtesy of the department on otolaryngology, Fred Z. Havens, M.D., of the Mayo Clinic, Rochester, Minnesota, gave an illustrated lecture on the subject of Malignancy of the Upper Air Passages and Mouth. This subject was further discussed by Drs. Byron M. Merkel and William W. Pearson. Dr. Havens was introduced by Walter Kirch, M.D., secretary of the section on otolaryngology.

E. M. Kingery, Executive Secretary

#### Pottawattamie County

A joint meeting of the Pottawattamie County and the Omaha-Douglas County Medical Societies will be held Tuesday, December 21, in the Medical Arts Auditorium, Omaha, Nebraska, with members of the Pottawattamie Society presenting the scientific program. G. R. McCutchan, M.D., of Council Bluffs, will read a paper on Demonstrating Calcified Valve Leaflets by X-Ray in a Patient with Calcareous Aortic Stenosis; and Grant Augustine, M.D., also of Council Bluffs, will present a case report of Diaphragmatic Hernia.

Fred H. Beaumont, M.D., Secretary

#### Scott County Annual Meeting

The annual meeting of the Scott County Medical Society was held at the Blackhawk Hotel in Davenport, Friday, November 6. Officers elected to serve during 1937 are: Dr. L. E. Sullivan of Donahue, president; Dr. L. A. Block of Davenport, vice president; Dr. H. A. Meyers of Davenport, secretary; Dr. Harold F. Evans of Davenport, treasurer; Dr. George Braunlich of Davenport, delegate; and Dr. F. L. Vander Veer of Blue Grass, alternate delegate.

Henry A. Meyers, M.D., Secretary

#### Tama County

The Tama County Medical Society met Friday, November 6, at the Methodist Church in Gladbrook, for a dinner meeting, which was addressed by J. F. Gerken, M.D., of Waterloo on Vaccines and Serum Treatment in Children.

A. A. Crabbe, M.D., Secretary

#### Van Buren County

A special meeting of the Van Buren County Medical Society was held Tuesday, November 24, at the Manning Hotel in Keosauqua. After the seven o'clock dinner, two Ottumwa physicians furnished the following scientific program: Cardiac Irregularities, W. E. Anthony, M.D., and Eclampsia, E. B. Hoeven, M.D.

C. R. Russell, M.D., Secretary

#### Wapello County Meetings

The regular meeting of the Wapello County Medical Society held Tuesday, October 20, in Ottumwa, was addressed by Glenn C. Blome, M.D., of Ottumwa, on Low Back Pain.

Tuesday, November 10, the Wapello County Medical Society was host to physicians included in the Ninth Councilor District of the Iowa State Medical Society. The meeting was held at Sunnyslope Sanatorium, preceded by a dinner served to one hundred and twenty members and guests. A feature of the evening's program was an address by A. A. Pleyte, M.D., of Milwaukee, representing the Wisconsin Tuberculosis Association. Dr. Pleyte spoke on Opportunities for Finding Tuberculosis.

D. O. Bovenmyer, M.D., of Ottumwa, spoke before members of the society at their regular meeting Tuesday, November 17, on Intra-Ocular Lesions in Pregnancy.

E. B. Hoeven, M.D., Secretary

### Woodbury County

Physicians from the Third and Fourth Councilor Districts of the Iowa State Medical Society attended the regular monthly meeting of the Woodbury County Medical Society held in Sioux City, Thursday, November 19, at the West Hotel. The meeting, which was held under the auspices of the cancer committee, was addressed by Louis M. Rosenthal, M.D., assistant director of the Tumor Clinic of the Michael Reese Hospital, Chicago. More than one hundred and fifty members and guests attended the session.

R. N. Larimer, M.D., Secretary

### Wright County

H. C. Kluver, M.D., of Fort Dodge, furnished the scientific program for the Wright County Medical Society at a meeting held in Belmond, Wednesday, November 25. Dr. Kluver spoke on Conditions of the Eye.

### Austin Flint-Cedar Valley Medical Society

Milford E. Barnes, M.D., of the Department of Preventive Medicine, College of Medicine, University of Iowa, addressed the Austin Flint-Cedar Valley Medical Society at a meeting held in Iowa Falls, Tuesday, November 10. Dr. Barnes spoke on Solving Mysteries in the Interests of Public Health. Scientific papers were presented by W. M. Fowler, M.D., of Iowa City, F. Harold Entz, M.D., of Waterloo, and Joseph B. Priestley, M.D., of Des Moines.

A new society to be named the Austin Flint Tri-District Society, and composed of the physicians in the First, Second, and Sixth Districts of the Iowa State Medical Society, with the old Austin-Flint Cedar Valley Medical Society as the nucleus, was formed at the business meeting of that organization. A short history of this society will be published in the historical section of next month's JOURNAL.

### Iowa and Illinois Central District Medical Association

Erwin R. Schmidt, M.D., professor of surgery at the University of Wisconsin, School of Medicine, will address the Iowa and Illinois Central District Medical Association, Thursday, December 17, at the Lend-a-Hand Club in Davenport, on Anesthesia and Surgery. Louis Barding, M.D., of Moline, Illinois, will open the discussion on Dr. Schmidt's paper, which will be continued by L. A. Block, M.D., of Davenport, and Charles G. Beard, M.D., of Sterling, Illinois. J. E. Rock, M.D., of Davenport, will present a case report on Streptococic Septicemia Secondary to Osteothrombotic Mastoiditis with Recovery; surgery, transfusions, pooled serum. Paul A. White, M.D., also of Davenport, will open the discussion on Dr. Rock's case.

James Dunn, M.D., Secretary

### Sioux Valley Medical Association

The next annual meeting of the Sioux Valley Medical Association will be held in Sioux City, January 19 and 20, 1937. The following guest speakers will appear on the program: Karl A. Meyer, M.D., Chicago,

associate professor of surgery, Northwestern University Medical School; Joseph L. Baer, M.D., Chicago, clinical professor of obstetrics and gynecology, Rush Medical College, University of Chicago; Fremont A. Chandler, M.D., Chicago, assistant professor of orthopedic surgery, Northwestern University Medical School; William F. Braasch, M.D., Rochester, Minnesota, professor of urology, University of Minnesota, Graduate School of Medicine; Roger L. J. Kennedy, M.D., Rochester, Minnesota, assistant professor of pediatrics, University of Minnesota, Graduate School of Medicine; Horace M. Korn, M.D., Iowa City, associate professor of theory and practice of medicine, State University of Iowa, College of Medicine; and Charles W. Poynter, M.D., dean and professor of anatomy, University of Nebraska, College of Medicine.

H. I. Down, M.D.

### PERSONAL MENTION

Dr. Arthur W. Erskine, of Cedar Rapids, appeared as guest speaker before the November meeting of the Des Moines Federation of Women's Clubs Tuesday, November 24. Dr. Erskine spoke on "Cancer, Its Prevention and Control."

Dr. T. E. Brobyn, a graduate of Temple University School of Medicine in 1933, has located in Waterloo where he will be engaged in the practice of medicine. Dr. Brobyn served his internship in Lexington, Kentucky, and for the past two years has been resident physician at the Woman's Hospital in Detroit, Michigan.

Dr. Otis Wolfe, of Marshalltown, gave two lectures at the Chicago Eye, Ear, Nose and Throat Hospital during their intensive course in Operative Surgery of the Eye held in Chicago November 2 to 7. The first was entitled "Surgical Technique of Congenital and Juvenile Cataract." The second lecture was "The Seton Operation in Advanced Glaucoma."

Dr. Jessie B. Hudson, formerly of Howard, Rhode Island, has located in Sheffield, Iowa. Dr. Howard has been engaged for the past several years as roentgenologist in a Howard hospital.

Dr. E. L. Durrill has been named chief surgeon of the Santa Fe Hospital in Fort Madison to succeed Dr. H. T. Werner, who recently resigned to enter private practice in Louisville, Kentucky. Dr. Durrill will be assisted by Dr. T. A. Heller, formerly of Milwaukee, Wisconsin.

Dr. Ronald F. Martin, of Sioux City, was presented by the Holstein Woman's Club in a public address, Monday, November 9. Dr. Martin spoke on "Cancer."

Dr. Daniel S. Egbert, who was graduated in 1935 from the University of Nebraska, College of Medicine in Omaha, has taken over the practice of Dr. W. R. Koob of Brayton. Dr. Koob will spend the winter in California.



Dr. Milford E. Barnes, of the department of hygiene of the State University of Iowa, has been elected president of the Iowa Tuberculosis Association, to fill the unexpired term of the late Dr. J. A. Edwards.

Dr. Gage C. Moore, a graduate of the State University of Iowa, College of Medicine, in 1934, has located in Ottumwa, where he will be engaged in the practice of medicine. Dr. Moore served his internship at the St. Louis City Hospital, St. Louis, Missouri.

Dr. Marvin J. Blaess, of Marshalltown, gave a talk on "The Eyes and Their Care" before the Parent-Teachers Association of the Van Cleve Schools on November 12.

Dr. Walter Norem, who for the past four and one-half months has been in charge of the practice of the late Dr. A. L. Bryan, of Muscatine, will locate permanently in that city. Dr. Norem was graduated in 1935 from the University of Louisville, School of Medicine, Louisville, Kentucky, and completed his internship at the Methodist Hospital, Madison, Wisconsin.

Dr. C. F. Obermann, of the staff of the State Hospital for the Insane at Cherokee, addressed the Emmetsburg Woman's Club Tuesday, November 17, on "The Treatment of Mental Cases."

Dr. Katherine S. Krenning, of St. Louis, Missouri, has been appointed pathologist and laboratory director of Mercy Hospital in Davenport. Dr. Krenning is a graduate of Barnes Medical School, St. Louis, Missouri, and the Gradwohl School of Laboratory Technique.

Dr. F. P. McNamara, of Dubuque, addressed an open meeting in Elkader sponsored by the Public Health Department of the Federated Clubs of Clayton County, Tuesday, November 24. Dr. McNamara's subject was "Cancer, Its Cure and Control."

Dr. Louis P. Ibelli, formerly of Brooklyn, New York, has associated himself with Dr. E. K. Dun Van of Chelsea for the practice of medicine. Dr. Ibelli was graduated in 1932 from Loyola University School of Medicine, Chicago, and has been practicing in Brooklyn for the past several years.

Dr. A. J. Schroeder has located in Marshalltown, where he will be engaged in the practice of medicine. Dr. Schroeder was graduated in 1935 from the State University of Iowa, College of Medicine, and comes to Marshalltown from Seattle, Washington, where he has been interning at the Swedish Hospital.

Dr. W. E. Sanders, of Des Moines, gave an instructive talk on the subject of carcinomas, illustrating his remarks with slides, at the first meeting for the season of the Knoxville Physicians' Club, held in Dr. C. S. Cornell's office in Knoxville, Tuesday, November 24.

Dr. James E. Dyson, of Des Moines, addressed the Polk County Health Chairmen of the Parent-Teachers Association, Saturday, November 14. Dr. Dyson's subject was "Immunization of the Pre-school Child."

#### DEATH NOTICES

Barber, Francis Adams, of Clear Lake, aged seventy, died November 4, as the result of complications following an operation. He was graduated in 1911 from the State University of Iowa, College of Homeopathic Medicine, and at the time of his death was a member of the Cerro Gordo County Medical Society.

Birney, Erasmus Edward, of Nora Springs, aged eighty, died November 5, as the result of a stroke. He was graduated in 1887 from the College of Physicians and Surgeons, Keokuk, and at the time of his death was a member of the Cerro Gordo County Medical Society.

Bryan, Arthur Lynn, of Muscatine, aged fifty, died November 12, following an extended illness due to heart disease. He was graduated in 1914 from the National Medical University of Chicago and had long been a member of the Muscatine County Medical Society.

Glann, Arthur Gerald, of Colo, aged sixty-one, died November 17, at the St. Thomas Hospital in Marshalltown. He was graduated in 1898 from the Sioux City College of Medicine, and at the time of his death was a member of the Story County Medical Society.

#### MINUTES OF MEETINGS OF STATE SOCIETY OFFICERS

(Continued from page 699)

medical relief set-up. Following needs were emphasized: increased amount of charitable work by physicians; unanimity of opinion and action by all members of the profession; instruction of medical students along lines of medical economics and medical organization. It was reported that such instruction is now being given to the junior and senior students at the College of Medicine, State University of Iowa. The Washington plan for the medical needs of the low income group was discussed and it was suggested that the Medical Economics Committee might well study this and similar plans and commend the best one to the House of Delegates. 7. Joint meeting with the Commander and Vice-Commanders of the Iowa Women's Field Army of the American Society for the Control of Cancer. The campaign was outlined. Women Vice-Commanders are to be appointed by the Commander, Mrs. C. W. McLaughlin of Washington, Iowa, in each of the councilor districts of the Iowa State Medical Society, the Vice Commanders will appoint captains in each county, who will work with the physician cancer chairman of each county medical society and the deputy councilors in this campaign. The support of the Cancer Committee and the Iowa State Medical Society was pledged in this important project.

# HISTORY OF MEDICINE IN IOWA

*Edited by the Historical Committee*

DR. FRANK M. FULLER, Keokuk

DR. JOHN T. MCCLINTOCK, Iowa City

DR. PAUL W. VAN METRE, Rockwell City

DR. TOM B. THROCKMORTON, Des Moines

DR. WALTER L. BIERRING, Des Moines

DR. WILLIAM JEPSON, Sioux City

## The Transition from Franklin Medical School to the Keokuk College of Medicine of the State University of Iowa

FERDINAND J. SMITH, M.D., Milford

(Continued from last month)

DR. JOHN F. SANFORD

John F. Sanford was born in Chillicothe, Ohio, April 13, 1824. When fourteen years of age he began the study of medicine with Dr. J. S. Prettyman, and in 1839 attended lectures at the Medical Department of Cincinnati College, in which Daniel Drake was a prominent teacher.

Being too young to graduate, Sanford came to Farmington, Iowa, in 1841, and began the practice of medicine. In 1844 he was elected to the state senate. In 1847 he attended lectures at the Philadelphia College of Medicine. We have been unable to determine whether he ever received a degree.

In 1848 he became professor of midwifery in the Rock Island Medical School and the following year was professor of surgery in the College of Physicians and Surgeons of the Upper Mississippi at Davenport, Iowa. As a delegate from this school, he attended the second annual meeting of the American Medical Association in Boston, 1849. On his return, he began an agitation looking to the organization of a state medical society in Iowa. His personal efforts were largely responsible for the gathering of twenty-five physicians at a convention over which he presided and during which, on June 19, 1850, the Iowa State Medical Society was organized.

In 1850, through his influence as a member of the state senate, the College of Physicians and Surgeons at Davenport became the Medical Department of the State University of Iowa, and he moved with the school to Keokuk, Iowa.

In 1850, at Keokuk, he established *The Medico-Chirurgical Journal*, in which Samuel G. Armor



DR. JOHN F. SANFORD  
1824—1874



was joint editor. This was the first medical journal west of the Mississippi river.

John F. Sanford was an excellent teacher and a skilled surgeon, and did much for the profession of medicine in the early period in Iowa.

DR. GEORGE W. RICHARDS

About the year 1841 there came a dominant figure to the city of St. Charles from Manlius, New York. He was a man of fine physique, well



educated, with undoubted ability. With the confidence of superiority, he often incurred the enmity of those about him, but his ability outweighed prejudice and his business increased, though grumbling continued. A man of such a sense of his own importance was not content to be merely the most prominent physician in the region; he had dreams of national repute; and where is there a better way to get publicity than through teaching? With this in view, in 1842, the fall before Rush Medical College opened its doors and the year before Illinois College threw its halls open to students seeking a medical degree, Franklin Medical College came into existence. With the local help of trustees, the school opened with the following teaching staff: G. W. Richards, professor of anatomy and physiology; John Thomas, professor of chemistry and pharmacy; Edward Mead, professor of materia medica, therapeutics and pathology; John Delamater, professor of surgery; Nichols Hard, professor of obstetrics and diseases of women and children; and Samuel Denton, professor of theory and practice of medicine. This faculty gave a course of lectures to a class of fifteen or twenty in the fall of 1842 and during the year of 1843-44. The trustees of the institution were Horace Bancroft, Wm. Rounseville, Lucius Fooks, J. S. Christian, Alex. Baird, Leonard Howard and Steven S. Jones. Among the students were Orpheus Everts, who married Dr. Richards' daughter; Addison Danford, R. I. Thomas, another of Dr. Richards' sons-in-law; Jerome Weeks, Dr. Bunker of Oregon,

Illinois; Torry, King, two Hopkins brothers, who settled in De Kalb and Oswego, Illinois, and John Rood. It is thought that Dr. Daniel Waite may have been also connected with the school. The reputation of Richards and his associates and the number of their students led to his being placed on the faculty of the La Porte College as head of anatomy in 1844-45.

Very little is known about Dr. Richards' early life and preparation except that he was born in 1800, in Norfolk, Connecticut. However, his life was full of adventure after his graduation at Fairfield in 1828, from the College of Physicians and Surgeons of the Western District of New York. The next year he became a member of the Onondago County, New York, Medical Society, of which he was vice president in 1835 and president in 1836. At a meeting of the society in 1835, in Camillus, he reported a case of wound of the heart with a small knife producing death in ten minutes, the child having, to appearance, been well most of the time.

Just when he came to Illinois is a little hazy, but a student of Rush in the first year of its existence stated that it was about the year 1839, though other historians give a later date. This man also stated that Richards came to St. Charles from Lockport, bringing with him a subject, a man who had been killed upon the canal at that point. He sent an invitation to all students in the vicinity to make him a visit. The narrator of this story came with the rest and was so impressed with Dr. Richards' methods of teaching that he decided to become one of his students.

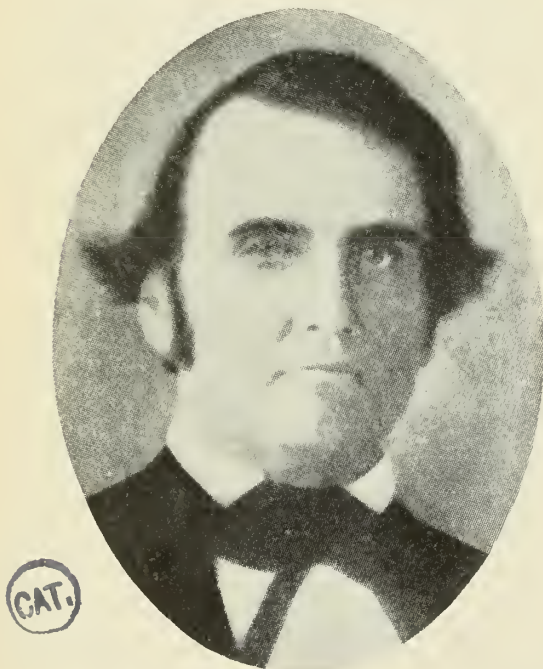
#### DR. A. S. HUDSON

A. S. Hudson was born in Massachusetts, May 1, 1819, and in early life was taken to Jefferson County, New York. In 1846 he graduated from Albany Medical College. Coming west, he located in Sterling, Illinois, where he carried on a general practice for more than twenty years.

In 1849 Hudson became preceptor of obstetrics and diseases of women and children in the College of Physicians and Surgeons of the Upper Mississippi at Davenport, Iowa, and the following year he was professor of materia medica and therapeutics at Keokuk in the Medical Department of Iowa State University.

When the Rock River Union Medical Society was organized in 1855 Hudson was elected vice president. He was chosen to represent the society at the annual meeting of the National Medical Association, and was appointed to deliver the leading address at the next annual meeting.

At the annual meeting of the Illinois State Medical Society in 1859 he was awarded a prize for the



DR. GEO. W. RICHARDS  
Founder of Franklin Medical College at St. Charles, Illinois

best essay on "The Uses of Opium in Inflammatory Diseases." The same year he became professor of physiology and pathology in Rush Medical College.

During the Civil War, Hudson served as surgeon of the Thirty-fourth Illinois Infantry.

In 1871 he moved to Stockton, California, where he was associated with his twin brother, A. T. Hudson, until ill health compelled him to discontinue active practice. The last five years of his life were spent at Mount Vernon, Ohio, where he died on October 9, 1905.

A. S. Hudson seems to have been a student, fond of scientific study. He was evidently an acceptable teacher, having been called to a chair in Rush after his experience in other schools.

The following comprises a list of the sources from which has been gleaned the material compiled and edited in the Histories of the Medical Department of Drake University and the transitional period between the Franklin Medical College of St. Charles, Illinois, through the Rock Island College, the Davenport Medical College of the Upper Mississippi, and the Keokuk College of Physicians and Surgeons, Medical Department of the University of Iowa (from 1850-1870) and in 1913 merged with the Medical Department of the State University.

Blanchard, History of Drake University; Iowa State Medical Library, History of Medicine; Drake University Library; Archives of the Iowa State University; History of Medical Practice and Education, of Illinois, Vol. I, Dr. L. H. Zeuch; Dr. A. A. Noyes, Dr. Geo. F. Jenkins, both having articles in Volume VIII of the Iowa Medical Journal; Annual Announcements of the Drake College of Medicine and previously, when it was an independent college; letters from various persons, as Dr. John Dillon, Drs. Addison Danford, Nichols Hard, Geo. W. Richards, and a few others; and last, but not least, the librarians, Dr. Jeannette Dean-Throckmorton of the Iowa State Medical Library, Miss Marie Haefner, in charge of the archives of the Iowa State University, and Miss Mary Bell Nethercutt of Drake University, who all gave much assistance to the writer, for which he is greatly indebted.

(The illustrations used in this article were copied from the illustrations in Dr. Geo. H. Weaver's History. For this help, and much other help that was received from Dr. Weaver vicariously through the pages of the Illinois Medical History, Vol. I, the writer expresses his sincere thanks.)

#### REFERENCES

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2. Ibid., p. 543.
3. Ibid., p. 543.

4. Ibid., opposite page 224 (La Porte Medical College), p. 224.
5. History of Medicine in Illinois, Zeuch, Vol. 1, p. 533.
6. Ibid., p. 645.
7. Ibid., p. 645.
8. History of Rock Island and Davenport Medical Colleges, Dr. A. A. Noyes, Iowa Medical Journal, Vol. 15, p. 42.
9. History of Medicine in Illinois, Zeuch, Vol. 1, p. 591.
10. History of Rock Island and Davenport Medical Colleges, Dr. A. A. Noyes, Iowa Medical Journal, Vol. 15, p. 45.
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19. History of Rock Island and Davenport Medical Colleges, Dr. A. A. Noyes, Iowa Medical Journal, Vol. 15, p. 45.
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22. History of Keokuk Medical Colleges, Dr. Geo. F. Jenkins, Iowa Medical Journal, Vol. 15, 1908-1909, p. 593.
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24. Archives of Iowa State University, Feb. 7, 1854.
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## Medical History of Ida County

G. C. MOOREHEAD, M.D., Ida Grove

The medical history of Ida County goes back to the winter of 1856 and 1857. Cold and snow came early and with wanton severity. Travelers between Fort Dodge and Sioux City were frequently caught in a blizzard and compelled to dig deep holes in the snow banks and remain there until the storm was over. Many of these people reached our home in a pitiable condition with frozen hands and feet. Father cared for many of them and amputated a number of toes and fingers. A Dr. Benine endeavoring to reach Sioux City was storm stayed for weeks and rendered needed attention. He made many amputations of frozen parts. A few families living down the valley suffered but slight sickness, and a death was very rare.

This condition continued from 1856 to 1877 when the village of Ida was platted and immigration began. A few houses were built and two or three stores were opened. During the summer Dr. Fred Seber came to make Ida his future home. He was a graduate from a medical school, about thirty years of age, and married. He built a residence in the new village of Ida. It is the second house west from the northeast corner of the "Old Town" as it is now known. The next year Dr. Elwood C. Heilman of Cedar County, Iowa, a graduate of the Medical College of Cincinnati, and his bride of a few weeks came to make Ida their permanent home. They were unable to find a house in which to live, and Dr. Seber offered them room in his new home. The two families lived together for about a year when Dr. Seber developed tuberculosis and moved to California.

Dr. Heilman remained the only doctor in the county until the railway was built in 1879 and the new town of Ida Grove began to grow. Soon doctors began to come. Many remained but a



short time. Those who became permanent residents were Dr. Jay D. Miller, an eclectic graduate of 1878, Monroe R. Karterman of the University of Pennsylvania, class of 1877, and A. T. Baker, University of Iowa, class of 1877. Dr. Karterman is the only one of these three who is alive at the present time. He is practicing in North Dakota. A few years after the location of these early physicians Dr. Theodore A. Collett of Long Island College Hospital, and Cicero H. Drake of Jefferson Medical College, Philadelphia, arrived. These two men remained here until their deaths. Both had served in the Civil War and were competent surgeons. The following story illustrates the condition of medicine in their time. One fall day they asked me to go with them to the country and administer chloroform to a farmer who had mangled his arm in a threshing machine accident. Arriving at the home of the farmer the doctors told me to get a basin of water and a towel. The patient was carried out of the house and laid upon a platform at the back door. I was told to hurry and not waste time in cleaning the wash pan. Both of the doctors had beautiful operating cases and were busy with their handkerchiefs wiping off the instruments and laying them on the porch floor. I was told to give chloroform and ligate the arm. They made a large flap, brushed off the flies and sewed it up tight. The patient made a rapid and uninterrupted recovery. Dr. Collett knew the value of maggots. I saw a little girl with him who was suffering from a very severe infection of a deeply burned hand. Maggots were crawling about in the deep palmar tissues. I offered to remove them but Dr. Collett said, "No, they are eating up the infection." The child, Madge Bleakly, made an uninterrupted recovery.

During these early days diphtheria and scarlet fever were prevalent most of the time. It was not uncommon for two or three children to die in a home in one day. Diphtheria was of the croupous form. We opened a number of tracheas and with several I ran a rubber tube into the wound and tried to suck out the membrane. Many families lost all of their children.

Throughout these trying times there was a most kindly feeling between the physicians. We often met together and played cards, feeling it was a good substitute for a medical society. Our first medical society was organized April 5, 1882, under the name of the Maple Valley Medical Society. Officers elected were: Dr. Davis, president; G. C. Moorehead, vice president, and Dr. Emmert, secretary and treasurer.

During the early years Battle Creek and the adjacent territory was served by Dr. Frank B.

Warnock, a local farm boy who was graduated at Iowa City, and a middle aged eclectic physician, Dr. Grasier. Dr. Warnock was of a literary turn and wrote a novel entitled "Richard Hume." After practicing here some twenty years he moved to Sioux City. Dr. Carlton E. Conn, a graduate of the College of Medicine, State University of Iowa, class of 1895, then located here and established a small hospital. After some years he moved to Sioux City and later to Los Angeles, and his hospital was taken over by Dr. George A. Hartley who with an assistant, Dr. G. S. Millice, are the only physicians in Battle Creek at the present time.

Dr. Fern M. Cole and Dr. C. S. Stoakes both practiced in Battle Creek for a number of years.

The town of Holstein has been served by a number of physicians. In 1882 Dr. Joseph C. Edgar located in the new town. He was a man of exceptional personality, integrity and medical ability. Soon Dr. Howard located and became a very busy practitioner. In 1896 Dr. George H. Crane, an Ida County farm boy and a graduate of the College of Medicine, State University of Iowa, settled here for life. He equipped a small hospital and was an active practitioner until his death. His practice was taken over by his son, Dr. Wendell Phillips Crane. Drs. Chester Lloyd Putnam and Dr. Carl H. Bretthauer came soon after graduating. Holstein has apparently settled into a "three doctor town."

The first physician to locate in Galva was Dr. David W. Farnsworth about 1886. He was thirty-six years of age and very active. He remained here until retiring, making his home in Cherokee. He practiced here twenty-eight years and retired in financial ease. Dr. A. M. Bilby came a few years after Dr. Farnsworth and remained until his death in 1929. Dr. Merrill Worth Grubb succeeded these men and has been the only physician here for many years.

The village of Arthur has shown the trend of the young physician more markedly than any other of our towns. Drs. F. M. Cole, Bert Gleason and Everett Ostling began their work here. All were bright, active, well educated young men. They received the support of the town and surrounding territory. However, the income from their work was not sufficient to retain them. Several others practiced here for brief periods of time. They were young active men but none remained long. Among these were Drs. Fred W. Keehl, James W. Townsend, Daniel Wheelwright and Addison J. Beebe. For the past nineteen years the town of Arthur has had no resident physician.

Ida Grove physicians can be divided into three

periods: First are Drs. Fred Seber and Elwood C. Heilman, who served the county from 1877 to 1880. Then came Drs. Jay D. Miller, Monroe R. Karterman, and A. T. Baker and some two years later Drs. Theodore A. Collett and Cicero H. Drake. Many others came and went after remaining a brief time. However, the situation remained about the same until Dr. James E. Conn opened an office and engaged in special surgical work. He kept an assistant and in 1904 Dr. Joseph T. Houlihan held this position for a short time. He then employed Dr. Edward Stewart Parker who remained with him a number of years. Dr. Parker entered army service in 1916. Dr. Conn continued his work alone until his death in 1918. Dr. Ernest Heilman was graduated in 1901 and was associated with his father until the latter's death in 1922. Dr. Edward W. Bookhart came in 1919. Dr. Robert B. Armstrong located in Ida Grove in 1918 and soon was associated in practice with Dr. Parker. Dr. G. C. Moorehead has been in continuous practice since 1879. Two homeopathic physicians, Dr. O. G. Tremaine and his successor, Dr. L. Q. Spaulding, were in active practice from about 1885 to 1910.

This record covers a period of fifty-nine years and the names of forty doctors. The average number of doctors in the county for the first thirty-five years (from 1877 to 1920) was seventeen. For the past fifteen years the average number has been eleven. This is about one physician for each 1,000 of population. The average age of our physicians has constantly increased and is now fifty-three years. Three of our physicians have done some literary work, Dr. Warnock a novel and poems, Dr. Parker a volume of poems, and Dr. Moorehead, historical writings.

Date of deaths and age of those who have died at their homes in Ida county:

Dr. A. M. Bilby, February 3, 1929, age seventy-four, cerebral hemorrhage.

Dr. Geo. H. Crane, March 31, 1931, age sixty-two, sepsis.

Dr. J. E. Conn, March 2, 1912, age fifty-one, internal hemorrhage.

Dr. Elwood C. Heilman, September 4, 1922, age sixty-six, angina pectoris.

Dr. J. C. Edgar, October 8, 1912, age seventy.

Dr. T. A. Collett, July 27, 1903, age about seventy-three, apoplexy.

Dr. C. H. Drake, January 4, 1889, age, early seventies.

Physicians located in Ida County at the present time and their ages at graduation, are:

Robert Burns Armstrong, University of Pittsburgh, 1910, age twenty-five; Carl G. Brett-

hauer, College of Medicine, State University of Iowa, 1920, age twenty-four; Wendell P. Crane, College of Medicine, State University of Iowa, 1929, age twenty-five; Merrill W. Grubb, Physicians and Surgeons, Illinois, 1912, age twenty-seven; George A. Hartley, College of Medicine, State University of Iowa, 1908, age twenty-eight; Ernest S. Heilman, Physicians and Surgeons, Chicago, 1901, age twenty-two; Thomas J. Houlihan, Rush, 1902, age twenty-seven; Giles C. Moorehead, College of Medicine, State University of Iowa, 1879, age twenty-two; G. S. Millice, Kansas Medical College, 1911, age twenty-eight; Edward Stewart Parker, College of Medicine, State University of Iowa, 1908, age twenty-six; Chester L. Putnam, College of Medicine, State University of Iowa, 1912, age twenty-five, and Edward W. Bookhart, Lincoln Medical College (E), 1906, age twenty-six.

(Continued from page 691)

sion. It is interesting to note that Streptococcus haemolyticus was cultivated from three of these patients, and it was necessary to amputate a finger of each of them. Culture from the fourth patient showed no organisms. The average number of drainage operations in each of these four patients was two and one-half.

#### SUMMARY

1. Minor injuries are the most common cause of hand infections.

2. The causative organisms are the usual pyogenic group.

3. There are characteristic signs in each type of infection.

4. With an average duration prior to hospitalization of 7.1 days, and the fact that 45 per cent of the cases after hospitalization required multiple incisions and several amputations before the hand infection was under control, it would seem that more adequate primary incisions were indicated, at an earlier stage.

(Continued from page 693)

was made to standardize it for the tuberculosis movement in the United States."

#### PREVALENCE OF DISEASE

	Oct. '36	Sept. '36	Oct. '35	Most Cases Reported From
Diphtheria .....	28	13	75	Grundy, Black Hawk
Scarlet Fever .....	252	93	353	Winneshiek, Woodbury
Typhoid Fever .....	22	15	33	Polk, Pottawattamie
Smallpox .....	20	11	24	Woodbury, Clarke
Measles .....	15	9	7	(For State)
Whooping Cough ...	93	41	85	Black Hawk, Allamakee
Cerebrospinal Meningitis .....	6	2	4	(For State)
Chickenpox .....	123	11	149	Kossuth, Black Hawk
Mumps .....	19	17	219	(For State)
Polio-myelitis .....	27	24	13	(For State)
Tuberculosis .....	98	59	48	(For State)
Undulant Fever .....	15	12	11	(For State)
Syphilis .....	120	122	102	(For State)
Gonorrhea .....	148	187	180	(For State)



# THE JOURNAL BOOK SHELF

## BOOKS RECEIVED

- A DIABETIC MANUAL**—By Edward L. Bortz, M.D., associate professor of medicine, Graduate School of Medicine, University of Pennsylvania. Illustrated. F. A. Davis Company, Philadelphia, 1936.
- ADULT EDUCATION**—By Lyman Bryson, professor of education, Teachers College, Columbia University, New York. American Book Company, Cincinnati, 1936.
- ARTHRITIS AND RHEUMATIC DISEASE**—By Maurice F. Lautman, M.D., consultant to the U. S. Public Health Service Clinic. McGraw-Hill Book Company, 330 West 42nd Street, New York, 1936. Price, \$2.00.
- AN INTRODUCTION TO MATERIA MEDICA AND PHARMACOLOGY**—By Hugh Alistair McGuigan, M.D., professor of materia medica, pharmacology and therapeutics, University of Illinois, College of Medicine, Chicago. With 71 text illustrations and 18 colored plates. C. V. Mosby Company, St. Louis, 1936. Price, \$2.75.
- CHEMICAL PROCEDURES FOR CLINICAL LABORATORIES** By Marjorie R. Mattice, A.B., Sc.M., assistant professor of clinical pathology, New York Postgraduate Medical School of Columbia University, New York. Lea and Febiger, Philadelphia, 1936. Price, \$6.50.
- FUNDAMENTALS OF HUMAN PHYSIOLOGY**—By the late J. J. R. Macleod, M.D., D.Sc., F.R.S., late regius professor of physiology, University of Aberdeen, Scotland, and R. J. Seymour, M.D., professor of physiology, Ohio State University. Fourth edition, C. V. Mosby Company, St. Louis, 1936. Price, \$2.50.
- INTERNATIONAL CLINICS, Volume III, Forty-sixth Series**—Edited by Louis Hamman, M.D., visiting physician, Johns Hopkins Hospital, Baltimore. J. B. Lippincott Company, Philadelphia and London, 1936.
- MICROBIOLOGY AND PATHOLOGY FOR NURSES**—By Charles F. Carter, M.D., Director of Carter's Clinical Laboratory, Dallas, Texas. With 138 text illustrations and 14 colored plates. C. V. Mosby Company, St. Louis, 1936. Price, \$3.00.
- PRINCIPLES OF CHEMISTRY**—By Joseph H. Roe, Ph.D., professor of biochemistry, School of Medicine, George Washington University. Fourth edition. C. V. Mosby Company, St. Louis, 1936. Price, \$2.75.
- SOCIAL ASPECTS OF THE BANANA INDUSTRY**—By Charles David Kepner, Jr., Ph.D., Columbia University Press, New York, 1936.
- A TEXTBOOK OF NEURO-ANATOMY**—By Albert Kuntz, Ph.D., M.D., professor of micro-anatomy, St. Louis University School of Medicine, St. Louis. Second edition enlarged and revised. Lea & Febiger, Philadelphia, 1936. Price, \$6.00.
- A TEXTBOOK OF PATHOLOGY**—By W. G. MacCallum, professor of pathology and bacteriology, Johns Hopkins University, Baltimore. Sixth edition, 1277 pages with 697 illustrations. W. B. Saunders Company, Philadelphia and London, 1936. Price, \$10.00.
- TISSUE IMMUNITY**—By Reuben L. Kahn, M.S., D.Sc., University of Michigan, Ann Arbor, Michigan. Charles C. Thomas, Springfield, Illinois, 1936. Price, \$7.50.

## BOOK REVIEWS

### DR. COLWELL'S DAILY LOG FOR PHYSICIANS

A brief, simple, accurate financial record for the physician's desk. Colwell Publishing Company, Champaign, Illinois, 1936.

This book consists of blank forms providing ample space for an average practice for one calendar year and with the exception of the ledger constitutes a complete system of financial record. Each page provides for entries on thirty-six patients, designating the hour of the appointment, the name of the patient, the service rendered, the charge for the service and whether payment was received. At the end of each monthly section is a special business summary indicating the amount of charged business, cash business, and moneys received on account, with grand totals for each column.

A second sheet is provided to record all expenses incurred for that month in the practice. This again is summarized under appropriate headings so that the items may be readily transferred to an annual statement or to tax returns. On the assumption that the physician will have non-professional income, a page is inserted for his personal account. Appropriate sections are supplied for the surgical record of the month, for narcotics dispensed, and a double utility page for any special purpose which may be desired. The volume has been planned on the loose leaf system so that additional pages may be inserted if desired and it is bound in an attractive, yet durable, fabricoid cover.

Actual experience with the log readily demon-

strates the claims made by its author and publisher; namely, that "It is a complete system of financial records."

### PSYCHOLOGY OF SEX

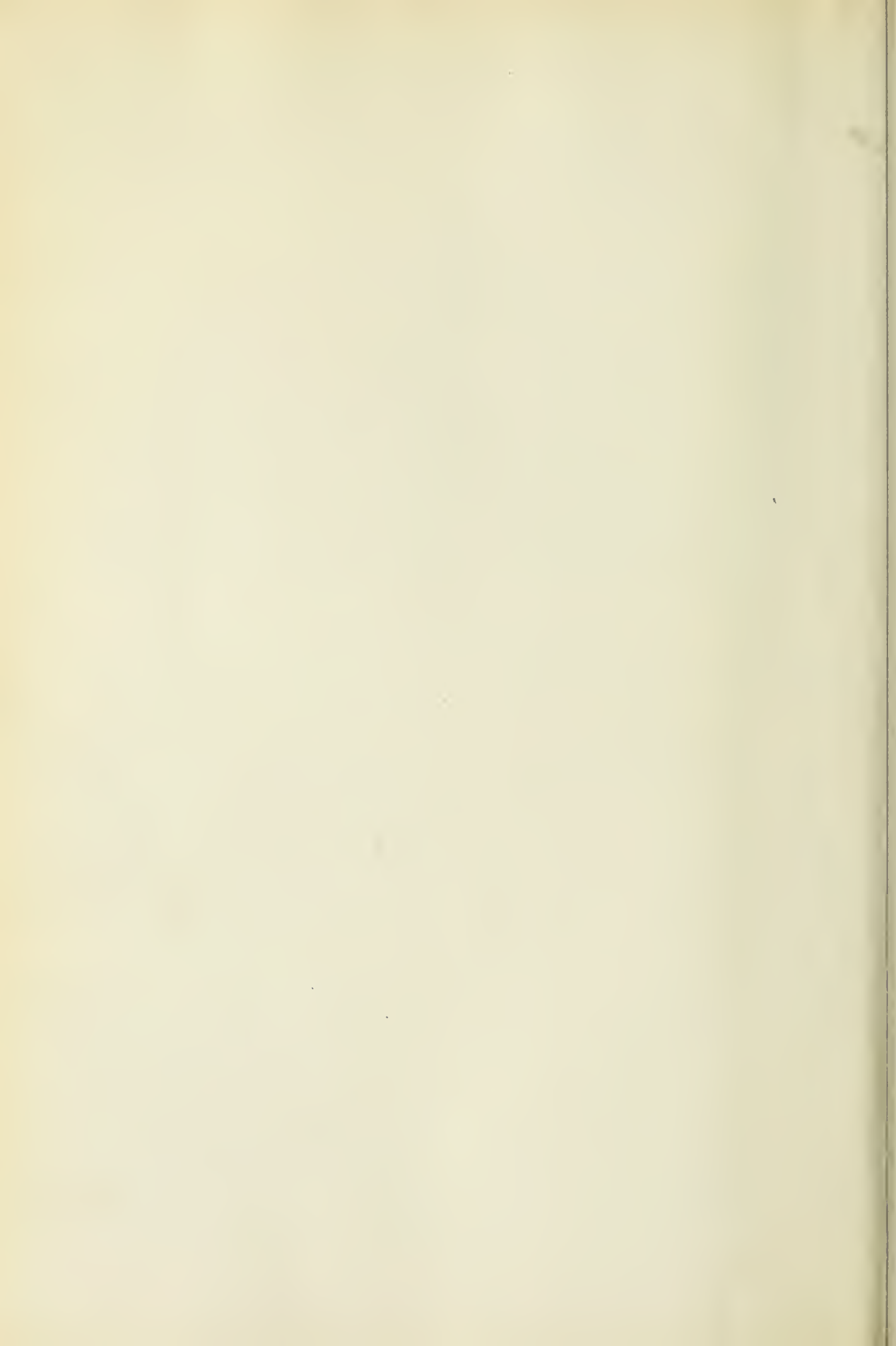
A Manual for Students by Havelock Ellis.  
Emerson Books, Inc., New York, 1935. Price, \$3.00.

The author of this manual, Dr. Havelock Ellis, needs no introduction to the medical profession of this country nor to the lay student in the field of sex. His contributions in this study are well recognized and accepted in most quarters as authoritative. In this text prepared for medical students, the author introduces his subject by a discussion of the biology of sex, tracing these various sex emotions, normal and abnormal from youth to maturity. In a chapter on marriage he discusses the problem of sexual abstinence, the childless marriage and the control of procreation. In his two concluding chapters he discusses effectual impulse in relation to love and elaborates on its dynamic nature. Each general section in the book is followed by a bibliography to readily accessible literature, providing the advanced student references for more exhaustive study.

This treatise should not be confused with the usual dissertation on sex written for the laymen and touching only the high points of the subject. This book is rather a textbook for the medical student and as such covers the field with thoroughness and completeness.

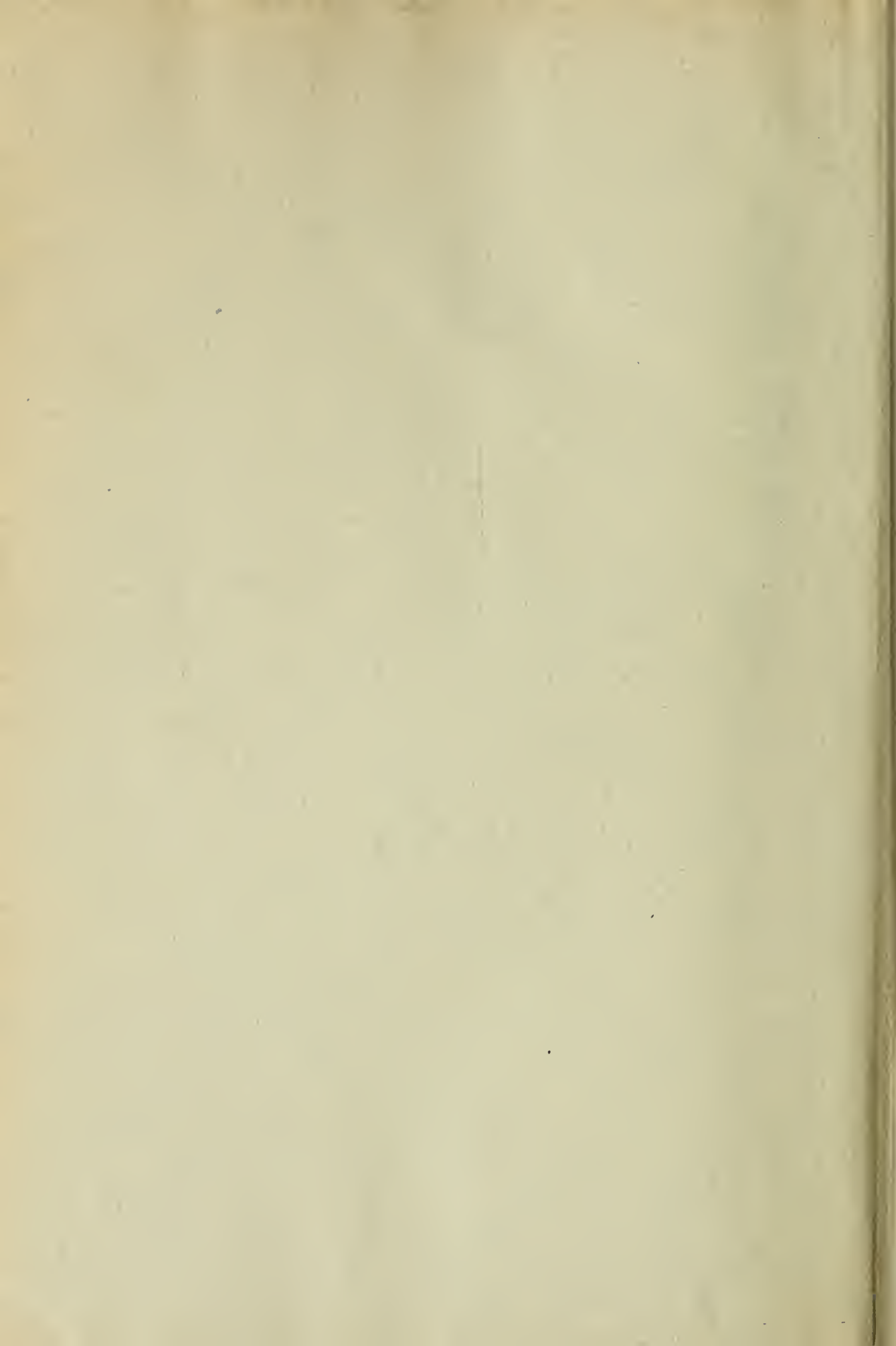












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